

# COMMERCIAL REFRIGERATION & AIR CONDITIONING

AUGUST, 1953

Want more information  
for your personal files  
on these subjects?

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How To Get Away From Competition  
By Specializing

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How To Make A Profit In The Cooling  
Business

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How To Use Ceiling Diffusers for  
Home Air Circulation

PAGE 40

How To Properly Design Kitchen  
Exhaust Systems

You'll find it  
in this issue!

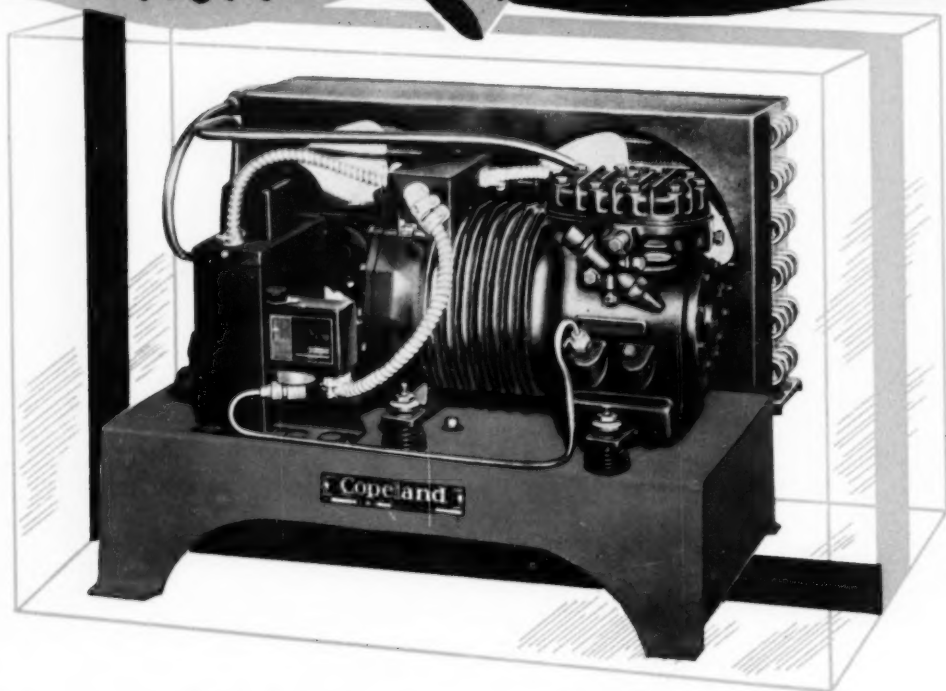
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**REFRIGERATIVE SUPPLY, Inc.**

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# PROFIT PACKAGE... THE COPELAND LINE



## Copeland develops and promotes for YOUR profit

That's winning team work. Copeland engineers are continually adding improvements and new units to a line that is already the most salable one you can handle.

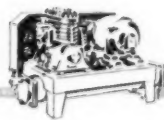
Then, through continuous promotion to your customer, Copeland builds demand. You're certain to profit when you take advantage of such a combination. Copeland refrigeration units . . . Copelametic and open-type . . . combine up-to-the-minute engineering with compact, rugged

construction. They are quiet and efficient . . . highest BTU capacity per kilowatt used.

In the complete Copeland line there is a size for every refrigeration or air conditioning requirement. Copelametic, the Accessible hermetic, is available through 7½ H.P. . . air-cooled from ¼ H.P. through 3 H.P. and water-cooled ⅓ H.P. through 7½ H.P. Copeland open-type units are available in the same size range. WRITE FOR BULLETIN C-52A.



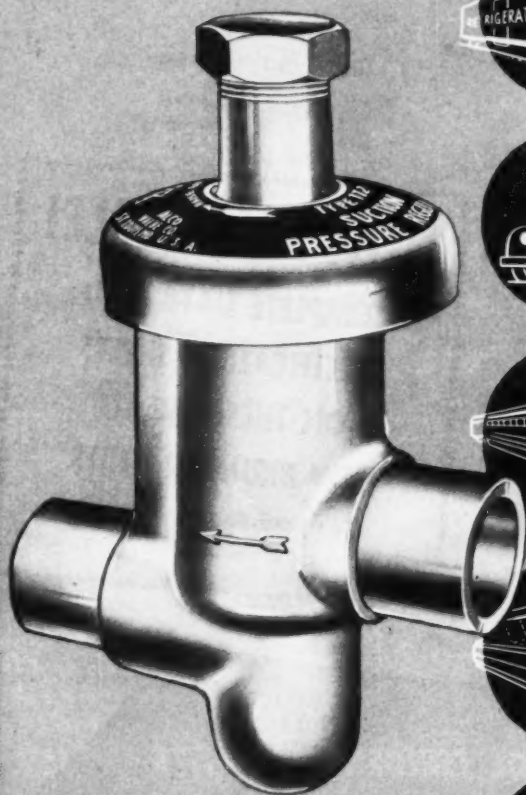
**Copeland**  
DEPENDABLE *Electric* REFRIGERATION



REFRIGERATION UNITS (OPEN-TYPE AND COPELAMETIC) WATER COOLERS

**COPELAND REFRIGERATION CORPORATION • SIDNEY, OHIO**

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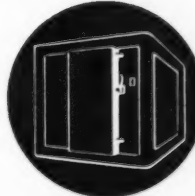
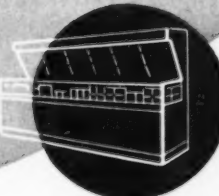
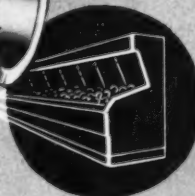
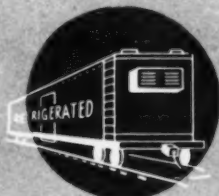
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Bulletin 186 with detailed  
information and will be glad  
to send it to you...FREE.

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Designers and Manufacturers  
of Thermostatic Expansion  
Valves; Evaporator Pressure  
Regulators; Solenoid Valves;  
Float Valves; Float Switches.



be kind  
to the motor!

**ALCO**

**SUCTION PRESSURE REGULATORS  
TYPES 771-772**

**KEEP IT COOL**

They reduce the suction pressure in  
the compressor and keep it at a safe level.  
ALCO 771, installed in the suction line,  
prevents burn-outs and adds years to the  
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where overload may be caused by:

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- surges in suction pressure due to load change
- high suction pressure caused by hot gas defrost
- low voltage and high pressures

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and AIR CONDITIONING • AUGUST, 1953

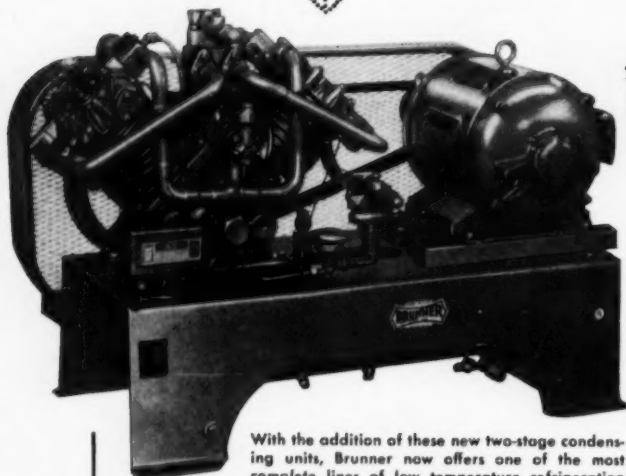
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1

why use two



when **one** will do ?



With the addition of these new two-stage condensing units, Brunner now offers one of the most complete lines of low temperature refrigeration in the industry!

**NOW AVAILABLE!**

COMPLETE DATA AND  
SPECIFICATION SHEETS  
ON THESE GREAT  
NEW BRUNNER UNITS

See your Brunner man —  
or write us today!

**BRUNNER INTEGRAL 2-STAGE CONDENSING UNITS  
OPEN THE DOOR TO NEW PROFITS  
IN LOW TEMPERATURE APPLICATION**

Now — with these new 2-stage Brunner units — you can easily handle many low temperature applications that formerly required hookups of two or more condensing units! Designed for use with both F-12 and F-22 refrigerants, these new Brunner units have ratings as low as -100°. Ideal for use in cold test chambers, frozen food, metal processing and other applications where sub-zero temperatures are desired.

Naturally, the installation and maintenance costs of these 2-stage units are much lower than jobs using two connected single stage condensing units. Get all the facts today — see your Brunner representative — or write us.

Brunner Manufacturing Company Dept. G-83, Utica, N.Y., U.S.A.  
IN CANADA: Brunner Corporation (Canada) Limited, Toronto, Ontario



Brunner 2-stage condensing units are  
available in 15 models, ranging from:

**3 H.P. to 30 H.P.**

***YOU'LL ALWAYS BE GLAD YOU SOLD A***

**BRUNNER**  
SINCE 1906



Established in 1944 as  
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# COMMERCIAL REFRIGERATION & AIR CONDITIONING

AUGUST, 1953

VOLUME 10, NO. 8

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## "It's the best combination we've ever used"

Operating efficiency of refrigerating equipment depends on a number of things—good design, installation skill and quality material. When you come right down to it, it's what goes on *inside* the refrigeration system that counts the most.

And what goes on inside may well be a reflection of the quality and purity of the refrigerant and the oil used in the equipment.

Here are two good combinations that are the keys to high efficiency and trouble-free operation:

**"Virginia" Refrigerants  
plus Suniso Oil**

**"Freon" Refrigerants  
plus Suniso Oil**

Try these combinations on your new and reconditioned jobs and see the call-backs disappear. They are within telephone reach

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of every service engineer—your wholesaler has them or write **VIRGINIA SMELTING Co., Dept. 64,** West Norfolk, Va.

**VIRGINIA**  
*Refrigerants*

ESOTOOL • KINETIC CHEMICAL'S "FREON" REFRIGERANTS  
V-METH-L • CAN-O-GAS • PERMAGUM • PRESSTITE TAPE  
SOLVEX PRODUCTS • SUNISO REFRIGERATION OILS

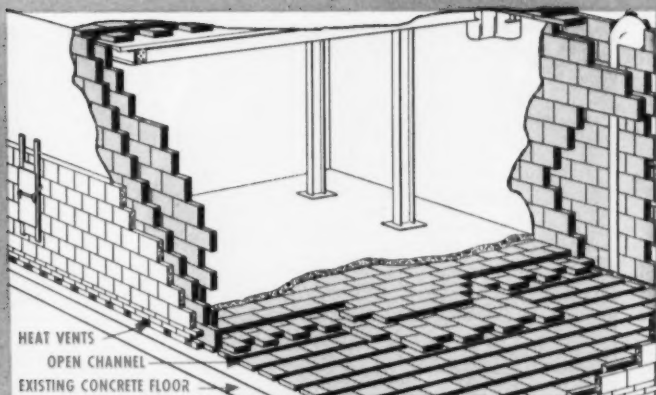
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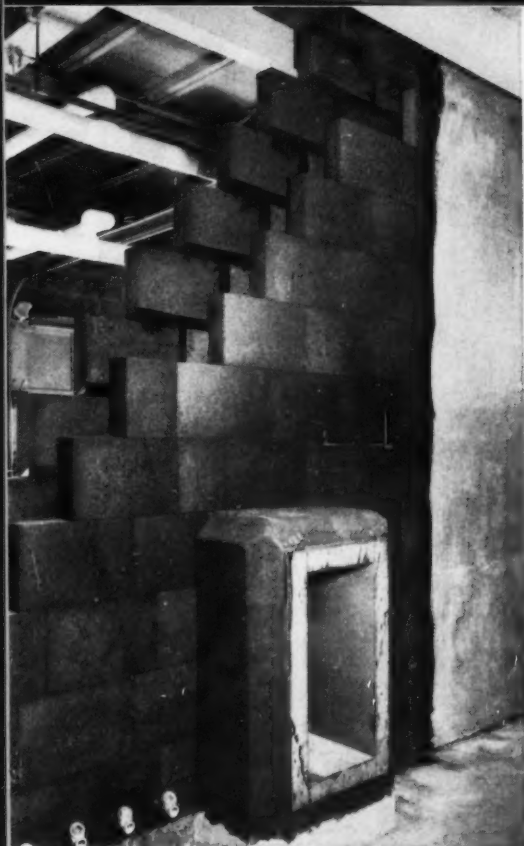
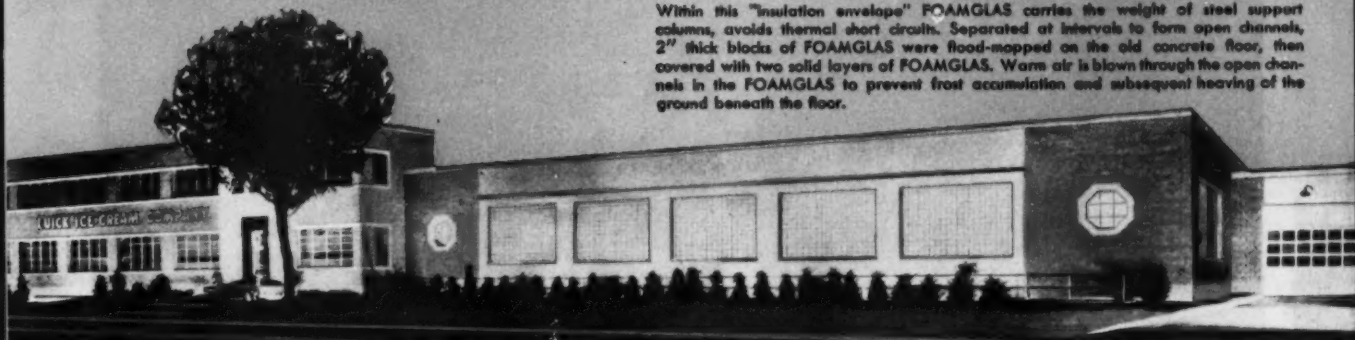
# FOAMGLAS

carries the load  
for Luick

...cuts construction costs,  
gives constant insulation  
efficiency



Within this "insulation envelope" FOAMGLAS carries the weight of steel support columns, avoids thermal short circuits. Separated at intervals to form open channels, 2" thick blocks of FOAMGLAS were flood-mapped on the old concrete floor, then covered with two solid layers of FOAMGLAS. Warm air is blown through the open channels in the FOAMGLAS to prevent frost accumulation and subsequent heaving of the ground beneath the floor.



The walls are composed of concrete blocks and two layers of 4" thick FOAMGLAS to provide maximum insulation effectiveness.

General Contractor: Dahlman Construction Co., Milwaukee

Insulation Contractor: Sprinkman Sons Construction Co., Milwaukee

When Luick Ice Cream Co. (Milwaukee Div. of National Dairy) constructed a new ice cream hardening room to handle increased business, they used FOAMGLAS, the rigid, cellular glass insulation, for walls, floor and ceiling. Luick found:

The exceptional compressive strength of FOAMGLAS, able to bear the weight of a concrete floor and roof supporting columns, allowed them to construct their new hardening room *within* the existing plant structure by installing FOAMGLAS directly on the old floor. This construction method saved them two months time and the cost of floor excavation or additional exterior construction.

Luick used FOAMGLAS also because it provides the constant insulating efficiency they need to maintain an unvarying  $-20^{\circ}\text{F}$ . temperature within the hardening room. It also maintains a constant  $U$  factor, resists moisture, is non-combustible and vermin-proof.

You, like Luick, can take advantage of these outstanding FOAMGLAS characteristics to solve *your* insulating problem. Use the coupon now to obtain full information and a free sample of this remarkable cellular glass insulation.

## PITTSBURGH CORNING CORPORATION

One Gateway Center • Pittsburgh 22, Pa.



### NEW!



24 page booklet  
on FOAMGLAS  
for refrigerated  
structures

JUST  
OFF  
THE  
PRESS

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Please send me the following:

- ☐ Your brand new booklet describing uses of FOAMGLAS for insulating walls, ceilings, floors in low temperature space.
- ☐ Free sample of FOAMGLAS
- ☐ Engineer to help with specific problem
- ☐ Booklet on FOAMGLAS for normal temperature buildings
- ☐ Booklet on FOAMGLAS for piping and equipment

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City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

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# ANSUL T-FLO DRIER

WITH **ANDRITE**

... picks up moisture faster and holds more moisture longer than any other refrigerant drier! Easy to install ... easier to replace! Lower inventories — four drier sizes and seven fittings provide 28 combinations of installation.

MANUFACTURERS OF REFRIGERANTS, REFRIGERATION PRODUCTS, INDUSTRIAL AND FINE ORGANIC CHEMICALS, LIQUEFIED GASES, DRY CHEMICAL FIRE EXTINGUISHING EQUIPMENT.



**ANSUL**  
*Chemical Company*

REFRIGERATION DIVISION • MARINETTE, WISCONSIN

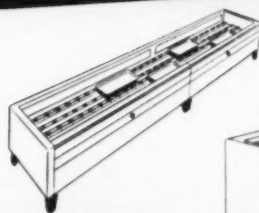
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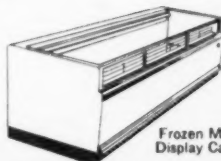
# TYLER

*the most complete line of  
food store equipment!*



Rolling-Cold  
Packaging Conveyors

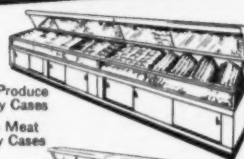
## Open Display Cases



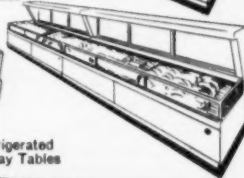
Frozen Meat  
Display Cases



Refrigerated  
Display Tables



Open Produce  
Display Cases  
Open Meat  
Display Cases

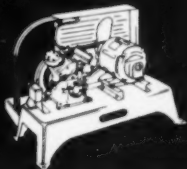


Multiple-Shelf  
Display Cases

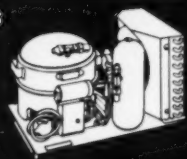


Frozen Food  
Display Cases

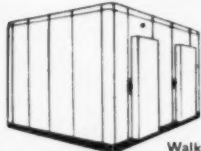
## Condensing Units



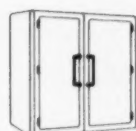
Open and Hermetic



## Storage Freezers



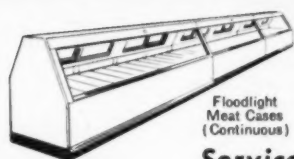
Walk-in



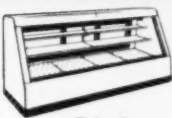
Sectional Reach-in



Upright



Floodlight  
Meat Cases  
(Continuous)

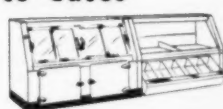


Dairy &  
Delicatessen Cases

## Service Cases

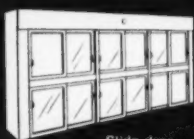


Conventional Meat Cases

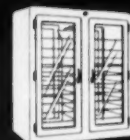


Produce Display Cases

## Reach-in Refrigerators



Slide-door



Reach-thru



Reach-in

## Walk-in Coolers

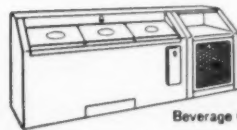


Storage

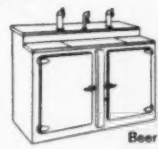


Display

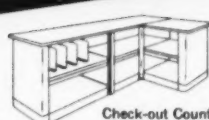
## Coolers — Dispensers



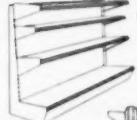
Beverage Coolers



Beer Dispensers



Check-out Counters



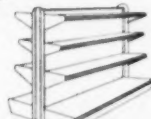
Wall Shelving

## Shelving

ADJUSTABLE



Display Tables



Center Island Shelving

You'll find prospects everywhere for Tyler equipment — food stores, restaurants, hotels, institutions, bakeries, drug stores, florists, theatres, many others. Over 500 models in the Tyler line.

**TYLER FIXTURE CORPORATION**  
Niles, Michigan



# 34

**years experience stands  
behind these products**

**. . . it's all yours  
when you specify *Acme*  
air conditioning and  
refrigeration equipment**

Since 1919 Acme has been building units to serve air conditioning and refrigeration fields. During that time they have experimented with thousands of models and installations. On-the-job and in-the-field service has always been the criterion for any design changes Acme makes. Today, Acme has this complete line of commercial refrigeration and air conditioning equipment — the end result of 34 years experience. You gain all this experience for yourself and your customer by the simple act of specifying Acme on your next installation.



#### **FLOW-COLD\* Remote Room Conditioner**

Designed for the modern recirculated hot or cold water air conditioning systems. Whisper quiet operation with variable air recirculation permits efficient individual zone control.



#### **HI-PEAK\* Water Cooler**

Seven standard sizes providing large storage capacity and all non-ferrous surfaces in contact with the water.



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Available for use where compactness counts. An all metal tower completely galvanized for long life. Capacities from 3 to 10 tons.



#### **ACME Liquid Receivers**

More than 70 standard sizes for Freon, Ammonia, or other refrigerants.



#### **ACME Oil Separators**

A complete line of Freon or Ammonia Separators for 1/4 to 100 ton systems.



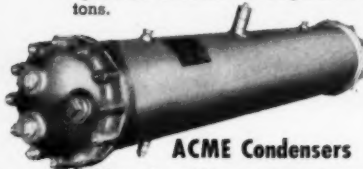
#### **ACME Heat Exchangers**

A complete line of compact, efficient Freon Suction and liquid line heat exchangers from 3 to 200 tons.



#### **DRY-EX\* Water Chiller**

More than 700 combinations from which to choose, assuring you of the most efficient chiller operation obtainable. Capacities from 5 to 260 tons.

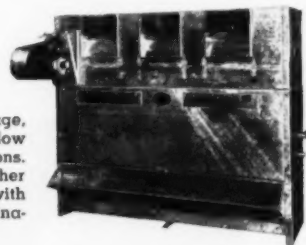


#### **ACME Condensers**

More than 120 models and standard sizes of Freon and Ammonia shell and tube and shell and coil types. Capacities from 5 to 700 tons.

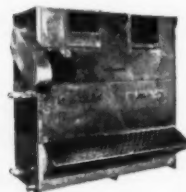
#### **BLO-COLD\* Industrial Unit Cooler**

For vegetable storage, packing plants and low temperature installations. 5 distinct series for either Freon or Ammonia with more than 260 combinations.



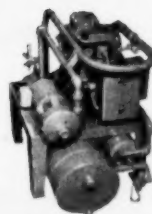
#### **ACME Evaporative Condensers**

For Freon or Ammonia. More than 30 models from which to choose. Your choice of copper or steel coils. Completely hot-dipped galvanized after fabrication. Capacities from 4 to 130 tons.



#### **ACT Cooling Tower**

All metal, hot dipped galvanized induced draft cooling tower. Available with exclusive Acme snug fitting pump for all 16 models. Capacities from 8 to 60 tons.



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A pre-tested liquid chilling unit shipped ready for installation. Matched Acme components for systems of 2 to 15 tons.

Addition of the Acme change over valve results in the Flow-Temp heat pump. A complete heating and cooling system in one compact package.

\*Trade Mark

**SERVING THE REFRIGERATION AND AIR CONDITIONING INDUSTRY SINCE 1919**

**\*Write for catalogs**  
on any of the products listed.



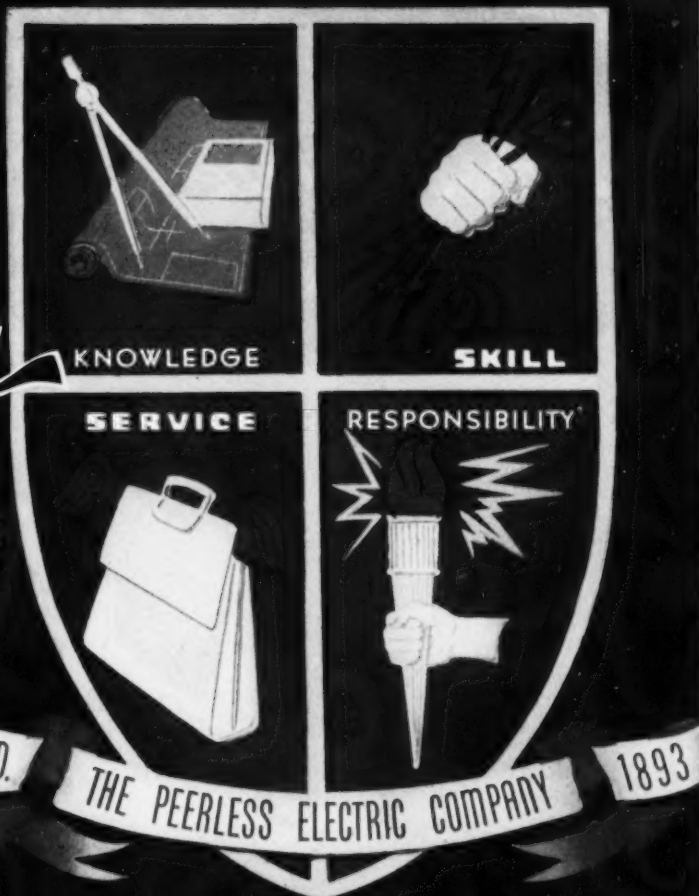
**ACME INDUSTRIES, INC.**

JACKSON, MICHIGAN



# Peerless

PREMIUM-BUILT  
ELECTRIC MOTORS



## POWER

A CAPACITOR-START, CAPACITOR-RUN MOTOR DESIGNED SPECIFICALLY FOR REFRIGERATION COMPRESSOR DUTY.

Peerless Motors have a special power you should know about . . . a power that builds reputations.

The men who build, sell and service America's finest mechanical equipment know what we mean. They know the value of a motor expertly designed for its job . . . a motor that looks and acts like an integral part of the machine it drives. These men know, too, the importance of service. They respect the efficient, friendly way Peerless Engineers handle difficult problems of application and supply.

Yes, Peerless Motors carry a special premium . . . the Peerless name . . . a name that for 60 years has stood as a symbol of quality and performance.

MOTORS

FANS

BLOWERS

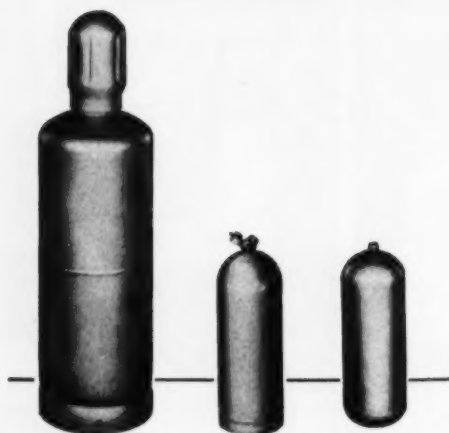
THE PEERLESS ELECTRIC COMPANY

100 WEST 42ND STREET, NEW YORK 36, N.Y.

*Peerless  
Electric*

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PREST-O-LITE cold-drawn cylinders for refrigerant gases are available in 5-lb. (rounded bottom or with foot ring), 10-lb., 25-lb., and 35-lb. sizes. You can have 50-lb., 100-lb., 150-lb., or special sizes and designs quickly made to your specifications.


You save money in the long run when you insist on the best cylinders. Fill in the coupon below and mail it today for more information about PREST-O-LITE cylinders that will meet *your* needs.

## For Refrigerant Gases Because You Get...

- ① **Uniform Wall Thickness**—Unusually close tolerances in wall thickness assure you a superior cylinder.
- ② **Long Life**—Years of extra service and added protection against denting, piercing, corrosion, and pitting result from the thicker walls and rugged construction.
- ③ **Light Weight**—You cut transportation costs because there are no extra-thick sections which only add weight without adding strength.
- ④ **Maximum Safety**—All cylinders are tested for leakage with dry air, in addition to standard safety tests.
- ⑤ **Benefit of Years of Experience**—Unsurpassed design and production come from more than 35 years of experience and skill in the development, manufacture and use of compressed gas cylinders.
- ⑥ **More Than Code Requirements**—You know PREST-O-LITE cylinders will never let you down because they're made, tested, and inspected not only in accordance with I.C.C. Specifications but also undergo many rigid tests far beyond these requirements.

### LINDE AIR PRODUCTS COMPANY

A DIVISION OF UNION CARBIDE AND CARBON CORPORATION

30 East 42nd Street  New York 17, N. Y.

Offices in Other Principal Cities

In Canada: DOMINION OXYGEN COMPANY, LIMITED, Toronto

The term "Prest-O-Lite" is a registered trademark of Union Carbide and Carbon Corporation.

LINDE AIR PRODUCTS COMPANY  
30 East 42nd Street  
New York 17, N. Y.

R-23

Please send full information about PREST-O-LITE cylinders for refrigerant gases.

NAME .....

COMPANY .....

ADDRESS .....

**MAIL THIS  
COUPON  
NOW!**

Circle No. 10 on Reader Service Card

**AUGUST, 1953 • COMMERCIAL REFRIGERATION**

# 3 *New* SPORLAN

**PEAK PERFORMERS**

*in 2-3 Ton Capacities Freon 12 are*

*...the New* **E...B and...U**

**THERMOSTATIC EXPANSION VALVES**



TYPE E



TYPE B



TYPE U

They're smaller!

They're perfect for even the most compact self contained units.

They'll Save You Money on either initial or replacement installation costs.

The new sizes incorporate the identical basic construction features which have identified Sporlan Peak Performance Thermostatic Expansion Valves throughout the years.

Type E supersedes Type F

Type B supersedes Type L 5/32 and 3/16 port sizes

Type U supersedes Type O 5/32 and 3/16 port sizes

Available in nominal capacity ratings of 1 to 3 tons F-12, 1½ to 5 tons F-22.

*See your Sporlan wholesaler today and get acquainted with these 3 new Sporlan Thermostatic Expansion Valves . . . THEN ..Buy Sporlan right down the line and get Peak Performance on all installations.*

**SPORLAN VALVE COMPANY**

7525 SUSSEX AVENUE

ST. LOUIS 17, MISSOURI



Years of  
manufacturing  
and application  
experience  
devoted exclusively  
to  
Refrigeration Plant  
Lubricants

One of The World's Largest  
Refrigeration and Air Conditioning  
Research Testing Laboratories

Your York  
Authorized Jobber  
wants you to consider  
what is back of  
every gallon of York Oil

Efficient  
Lubrication  
of more than  
500,000  
Compressors

*The Finest Oil You Can Buy!*

**YORK SUPER-REFINED  
REFRIGERATION OIL**

York knows that proper lubrication is a prime requisite of refrigeration compressor performance. So York refines its own oil, with a special process.

The result—stability. York oil stands up under the severest service experienced in operation . . . summer and winter . . . year after year.



This impressive background assures to the owner of equipment reduction of power bills to a minimum . . . freedom from excessive compressor wear . . . increased life of compressor . . . cooler operation.

To the serviceman it means important things, too—no call-backs because of oil . . . customer satisfaction . . . ease of maintenance of equipment.

Yes, it pays to use only *York Oil*.—York Corporation, York, Pennsylvania.

*It pays to use York accessories and supplies from your Authorized York Jobber*

Air Filters • Automatic Controls • Charging Connections • Cold Storage Doors • Freon Refrigerants • Gas Masks • Hand Oil Pumps • Ice Cans • Motors and Pumps • Oil • Oil Traps • Purge Devices • Receivers • Renewal Parts • Suction Traps • System Cleaners • Valves and Fittings

**YORK**

REFRIGERATION AND AIR CONDITIONING  
HEADQUARTERS FOR MECHANICAL COOLING SINCE 1885







## **KOLD-HOLD truck refrigeration WILL PAY FOR ITSELF!**

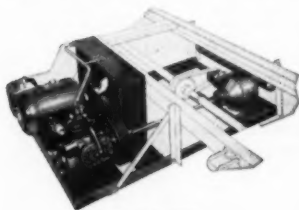
Every day is judgment day in your business. Your customer's judgment determines your success — or failure.

In striving for favorable judgments from your customers, natural color, full weight, garden flavor — these three factors make up the taste test that determine whether your products are preferred. Kold-Hold dependable truck refrigeration keeps you ahead of your competition, in delivering full flavor. Its low cost is cheap customer insurance.

For example, one user reports, "The truck has been our best advertisement we ever had. Our business has increased about 20% in 4 months."

In addition to the advantages in customer satisfaction you also eliminate spoilage losses, enable your trucks to make longer hauls with a full day's load and cut down handling time. With these benefits you can easily see why Kold-Hold truck refrigeration pays for itself.

### **KOLD-HOLD can answer any refrigeration problem!**



**KOLD-TRUX**

Which do you prefer . . . Mobile or Hold-Over truck refrigeration? Kold-Hold can give you either or a combination of both.

When your weather worries start, pick out the routes with the biggest refrigeration problems and call on Kold-Hold to give you a satisfactory solution. They will give you the right combination for your needs from such highsides as the Kold-Trux Mobile Unit, a mounted compressor, or make-and-break assemblies, coupled to such lowsides as Kold-Hold Hold-Over Plates, Thin Plates, Serpentine Quick-Action Plates, or Blowers.

Why not give us the details of your problems and let our engineers find the most efficient solution for you. Write today for details.



**HOLD-OVER PLATES**



*Tell us your truck refrigeration problems and send now for complete data and literature.*

## **KOLD-HOLD**

*protects every step of the way*

Division of TRANTER MANUFACTURING, Inc., 122 E. Hazel St., Lansing 4, Mich.

Circle No. 13 on Reader Service Card  
and AIR CONDITIONING • AUGUST, 1953

**Wagner**  
ELECTRIC MOTORS  
...the choice of leaders  
in industry

# Wagner

## CAPACITOR-START MOTORS

*for general purpose applications  
with high starting torque*



Type RK Motor  $\frac{1}{8}$  to 5 hp.

Wagner capacitor-start induction motors are a sound choice for applications where starting loads are fairly heavy, but which can be brought up to operating speed quickly. They have become increasingly popular for installation on equipment such as air conditioners, refrigerators, freezers, water pumps, motor-driven tools,

and on similar fractional or integral horsepower applications.

These motors offer low maintenance cost—only a minimum of servicing is required—and they give many years of reliable service with unusual freedom from vibration and noise.

When you standardize on Wagner Motors—you get the advantages of a liberal warranty... of nationwide service facilities, with on-the-spot service, replacement motors and parts available from 25 Wagner-owned Service Branches and more than 750 Authorized Service Stations. You can choose from a wide variety of types and sizes—single-phase or polyphase—(from  $\frac{1}{125}$  to 400 hp). Bulletin MU-185 gives complete information—write for your copy.

**Wagner**  
Electric Corporation  
EST. 1891

**WAGNER ELECTRIC CORPORATION**  
6442 Plymouth Ave., St. Louis 14, Mo., U.S.A.

ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES  
AUTOMOTIVE BRAKE SYSTEMS • AIR AND HYDRAULIC

BRANCHES IN 32 PRINCIPAL CITIES

## about

# PEOPLE

**Wallace B. Bateman, Jr.** will head up the newly-formed air



conditioning sales section of Amer-glas sales division of American Air Filter Co., Inc. Bateman will have control of the planning and sales contact with orig-

inal equipment manufacturers and distributors handling air conditioning and all-weather units throughout the nation. For the past six years he has served in various sales departments of the company.

**George A. Israel, Jr.**, has been appointed sales representative for Bell & Gossett Co.'s products in Florida, with headquarters in Jacksonville. Israel will cover the same territory serviced by the late John A. Pastor. He had been Mr. Pastor's assistant since 1946. **Roy H. Cogburn**, has been named as Israel's assistant in the territory.

**Howard Haug** has been appointed field representative for the



Williams Div., Eureka Williams Corp. His territory will include in part Maryland, Ohio, Pennsylvania and West Virginia. He will make his headquarters

near Pittsburgh. Haug was associated with a sporting goods firm before joining the Eureka-Williams sales force.

**Ishier Jacobson** has been named manager of the export division of Connor Engineering Corp.

Four appointments have recently been made by Drayer-Hanson, Inc., in its sales organization. **Mark Raymon** has been appointed sales representative handling air conditioning equipment in Oregon; **Harry Torch** has been named manufacturer's representative for the Atlanta, Ga., territory; **Mel A. Disney** has been appointed manufacturer's representative for refrigeration and air conditioning equipment in eastern Kansas and western Missouri, and **Brock Mott** has been named Gulf Coast distributor for

LEADING REFRIGERATION SERVICE SHOPS USE

## DURO-CHROME Refrigeration Tools

THE MOST COMPLETE LINE IN "MATCHED SETS"

When you use specially designed Duro-Chrome "Matched Set" Tools — you can do all refrigeration jobs **Faster — Easier — Better!**

Each tool instantly seems just right in your hand. Your fingers drop easily into the natural grip and you get a feeling of perfect balance. There is a "family resemblance" that you recognize in all "Matched Set" Duro-Chrome Tools. That's why Duro-Chrome Quality Tools work so well together.

See Your Refrigeration Equipment Jobber



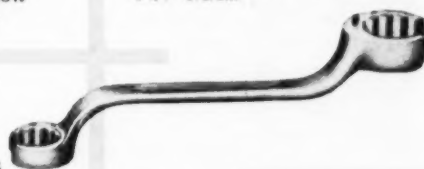
### DURO REFRIGERATION RATCHET

5 tools in 1! Head has 1/4" square drive hole and fingertip reverse control. Handle has 3/16", 1/4" and 5/16" square openings for valve stems and a 1/2" hexagon opening for head, seal and flange bolts. Chrome alloy steel, chrome plated and brightly polished. Only 6-1/4" overall.



### SPECIAL VALVE STEM AND PACKING GLAND "T" WRENCHES

Speed up and simplify jobs with these convenient slide "T" Handle Wrenches. Available in a variety of sizes to fit most valve stems and packing gland nuts. Extra thin wall makes it easy to get at these hard-to-reach spots.



### FLARE NUT WRENCHES

Accurately broached hex openings fit flare nuts securely and allow positive turning action in close quarters. Straight or offset type. Brightly chrome-plated and polished, chrome alloy steel.

get your **FREE DURO-CHROME** Pocket Catalog

### REFRIGERATION SOCKET SETS

With chrome alloy steel sockets in all the sizes and shapes required for refrigeration work. Hexagon for hex nuts and bolts, square for valve stems and set screws; special oval or prong sockets for packing gland nuts.



SEND THIS COUPON FOR YOUR PERSONAL COPY

DURO METAL PRODUCTS COMPANY  
2649 N. Eldorado Ave., Chicago 39, Ill.

Please send my Free copy of the new DURO TOOL Pocket-size Catalog. Address to me, personally.

MY NAME

(FREE)

ADDRESS

CITY

STATE

Also Makers of Nationally Advertised DURO Power Tools  
Circle No. 15 on Reader Service Card

industrial products, particularly "Boiling Point" cooling systems and "Cal-Fin" tubing.

The New York City district sales force for Bush Mfg. Co. and Heat-X-Changer Co. has recently undergone expansion and re-organization. The new district manager is **George J. Finck**. Other representatives now operating out of the New York office are **Edgar L. Disbrow**, **Hugo Basch** and **Arthur H. Randall**. Finck previously was a sales engineer for these firms in the New Jersey territory. Formerly an application engineer, Disbrow will cover sales engineering for the two companies. Basch will serve as an application engineer. Randall will handle the Bush heating line in the metropolitan New York area.



G. J. Finck

**Jurg A. Senn** has been named manager of the newly established diaphragm power element division for Paragon Electric Co. He was formerly associated with Perfex Corp. where he was responsible for many new developments on diaphragms. At one time Senn was on the development staff of Cutler-Hammer Inc., and during the last war he was with the ordinance development division of the Bureau of Standards in Washington, D. C.



Tenney Engineering, Inc. has appointed **Peter K. Baade** as test engineer for the environmental test chamber division, and **Thomas Glenn** has been added to the sales staff of the refrigeration division.

Baade is responsible for final testing of all chambers and also heads the research and development of chamber refrigeration systems. Glenn will handle unit coolers, coils, expansion valves, ice makers, and defrosters throughout northern New Jersey.

**Richard G. Ray**, has been named vice president in charge of manufacturing and **I. H. Nye** has been elected to the board of directors of General Controls Co. Ray



R. G. Ray



I. H. Nye

will retain his former responsibilities as plant superintendent for the firm. Starting as a shop employee, Ray has worked in virtually every phase of production. Prior to becoming plant superintendent he worked as assembly foreman for two years. Nye, a veteran executive of the company, has been treasurer since 1946. He is also assistant secretary and controller.

**Thomas L. Carver** has been promoted to New York district manager of Fiber Glass Div., Libbey-Owens-Ford Glass Co. He will succeed A. K. McClay, who resigned.

**Sydney M. Spellman** has been appointed regional sales manager for United Refrigerator Co. He will cover all territory west of the Mississippi. In his new position Spellman will set up freezer food programs for appliance dealers, department stores and food plans and will supervise and teach sales procedures to sales forces of stores, dealers and food plans. He resigned the assistant sales managership of Renaire Corp. to join United.

**John H. Jennings** has been named chief engineer in charge of all air-conditioning activities at Servel, Inc. Jennings joined Servel a year ago as chief engineer for room air conditioners. He is now responsible for engineering on "all-year" air conditioning as well. Previously he was chief engineer of Mitchell Mfg. Co. of Chicago. **Dr. Eugene P. Whitlow**, formerly development engineer on all-year air conditioning, was appointed assistant chief engineer for all-year air conditioning. **Ed Geishert**, who was development engineer for room air conditioners, is now assistant chief engineer for that product.

**Walter G. Schneider** has joined Jordon Refrigerator Co. as a field representative for western Pennsylvania, according to **Harry F. Fogel**, vice president in charge of sales. He will concentrate on both commercial and domestic lines of upright home freezers, air conditioners and room de-humidifiers. His headquarters will be at 321 Empire Bldg., Pittsburgh, Pa.



**Roger O. Bay** has been named sales manager of the tool division of Bonney Forge & Tool Works. Bay, formerly sales manager of Cleveland Pneumatic Tool Co., will direct sales of Bonney mechanic's hand tools in the refrigeration, automotive and other allied fields. He will make his headquarters at the home office in Allentown, Pa.



**Robert P. Quinn**, **Ed Burks** and **Oslin Nation Co.** have been appointed representatives for Balti-



more Aircoil Co., Inc. Quinn, of Technical Products Service and Sales, Louisville, Ky., will cover western Kentucky and southern Indiana. Burks, with P. L. Guest Sales Co. of Greensburg, N. C. will cover the state of Virginia with headquarters in Richmond. Oslin Nation Co., of Dallas, Texas, will cover the state of Texas east of the Pecos River.

Two appointments have been made in Chrysler Airtemp's sales organization. **Jerome A. Clarke**



J. A. Clarke



J. G. Kehoe

has been named head of the sales training department at the Dayton home office and **Jack G. Kehoe** has been appointed manager of the Dayton sales region. With the company since 1940, Clarke has headed the Detroit regional sales office since 1950. Kehoe joined Chrysler Corp. in 1941. Before joining the Airtemp Div. he held sales and personnel training positions in Detroit and Evansville, Ind., plants.

**Lloyd R. Ledbetter**, owner and manager of Ledbetter Sales Co., Lubbock, Tex., has been named sales representative for Nor-Lake, Inc. Ledbetter will supervise sales of Nor-Lake equipment in Arkansas, Oklahoma, Texas,



New Mexico, Kansas and parts of Missouri. He started in the refrigeration field in 1934 as a service man. In addition to his agency in Lubbock, Ledbetter maintains warehousing facilities for equipment in Oklahoma City.

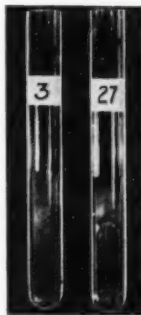
**Irving Weinberg** has been appointed district manager of the Atlanta branch office of Vilter Mfg. Co. Weinberg joined the company in 1945 and has served in both shop and office departments. He is 1st vice chairman of the Milwaukee section of ASRE.

The appointment of **Sidney G. Stevens** as manager of marketing for the General Electric specialty refrigeration department has been an-

nounced by department general manager Harold B. Donley. **Frank B. Gray** was named manager of sales for room air conditioners to replace R. Dail Moore who recently was transferred to Schenectady, N. Y. Stevens had been executive manager of Reinecke & Associates, Chicago industrial design organization, for the past 18 months. He previously had 15 years experience with Montgomery Ward & Co. Gray joined General Electric in March of 1950 as a sales analyst with the air conditioning division at Bloomfield, N.

# WHY WAIT HOURS?

## THAWZONE ACTS FAST



When you encounter a moisture problem, you might as well clear it up as promptly as possible. Why wait for the moisture to be picked up?

Thawzone travels with the refrigerant to every part of the system where moisture may be. The entire refrigerant charge is in contact with Thawzone after a minute or two of "on cycle".

### CORROSION TEST

Here is another test that shows how Thawzone prevents corrosion. Both tubes contain 25cc of "Freon" 12, .025cc water, 4cc oil, and steel strips. Tube No. 3 also contains 1% Thawzone. Tube No. 27 contains 1% antifreeze instead of Thawzone. This unretouched photo shows how the metal protected by Thawzone remained free of corrosion.

Besides preventing corrosion by DESTROYING water, Thawzone neutralizes acids that promote corrosion.

# THAWZONE®

The Only Product That  
Destroys Water...  
and Goes to All of it

1. Reaches all parts of the unit.
2. Actually destroys moisture . . . not a mere antifreeze.
3. A patented invention . . . cannot be copied.
4. No pressure drop possible.
5. Not subject to oil clogging.
6. Neutralizes acids, helps prevent corrosion.
7. Helps prevent copperplating.
8. Prevents moisture trouble in new units, too.
9. Costs less. Only about 8¢ per lb. of refrigerant treated.
10. One product for all "Freon" and methyl units.
11. Only 1/4 oz. per lb. of refrigerant required.

Practically every wholesaler carries Thawzone.

Highside Chemicals Co., Clifton, N. J.

Circle No. 16 on Reader Service Card



J., after post-war experience in marketing and sales in the fan and building materials fields. He was transferred to Louisville in February of 1952 as a sales specialist for room air conditioners.

Eight appointments have been made in Servel Inc.'s sales and service staff of the air conditioning division. **R. P. (Ray) Schenk** is a representative on the staff of the midwestern region. He has had 15

years experience in air conditioning sales, engineering and service fields with manufacturers of large equipment. **C. P. Holcombe** is an air conditioning representative in the southern region. **Glen Galloway** has been named to the staff of the direct sales department, with headquarters in Evansville, Ind. He previously worked with the patent division in Washington, D. C. **George Anderson**, who has been with Servel for 12 years in the engineering department, is now in the air conditioning service department in Evans-

ville. **Norton Miller** has joined the eastern region staff as an air conditioning sales representative. He was formerly with Bush Mfg. Co. **W. P. Dwyer** is in the eastern region as an air conditioning sales representative. **J. L. Kaposta** is preparing and executing service training programs for the factory and the field for the service department. **R. L. Brown** is on the Evansville staff as an air conditioning sales engineer in the application engineering department.

*Features  
that spell  
value...*

## Grand Rapids Brass Refrigerator Hardware

Whether for original equipment or replacement, Grand Rapids Brass locks and hinges provide a rugged, handsome finishing touch that spells quality and value. And they cost no more. That's why leading manufacturers and jobbers specify Grand Rapids Brass. You can be sure with any Grand Rapids Brass lock—when it trips... it grips!

### THE ALL-NEW EDMOUNT LINE



The NEW, heavy-duty Edgemount Lock is chrome-plated, operates easily, installs quickly. Surface-mounting eliminates mortising of wood or stamping. Fully reversible lock mounts on either side of door, handle up or down. Strike adjustment  $\frac{1}{8}$ " to  $\frac{3}{4}$ ".

THE EDMOUNT  
HINGE



Oil impregnated bronze bushings in this hinge provide two-way protection against tension and thrust. Requires no lubrication. A heavy-duty hinge.

### THE POPULAR SURFACE-MOUNTED LINE



Reversible Lock



Reversible Hinge

Write for Complete Illustrated Information

## Grand Rapids Brass Company

DIVISION OF CRAMPTON MANUFACTURING COMPANY  
GRAND RAPIDS, MICHIGAN

Suppliers to the Nation's Leading Automotive, Refrigeration and Plumbing Manufacturers

**Thomas A. Byrnes** has been appointed to the newly created position of eastern division sales manager, and **Gordon J. Duerr** has been named sales manager for the west-



T. A. Byrnes



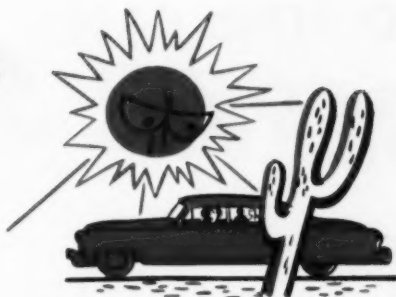
G. J. Duerr

ern and mid-western division of Imperial Brass Mfg. Co. Byrnes, with the company since 1922, has been representing Imperial in the New York-New Jersey-eastern Pennsylvania area for many years. Duerr has been with Imperial since 1936 and was previously western sales manager.

**R. A. Sherer** has been appointed sales manager of White-Rogers Electric Co., with headquarters in St. Louis. Sherer started with the company in 1943 as general foreman of night factory operations. Transferred to sales in 1948, he handled special project sales, was Chicago district manager and Chicago regional manager until this latest appointment.



**MUELLER BRASS CO. HELPS  
DRIVERS "KEEP COOL"  
ON HOTTEST  
SUMMER DAYS . . .**

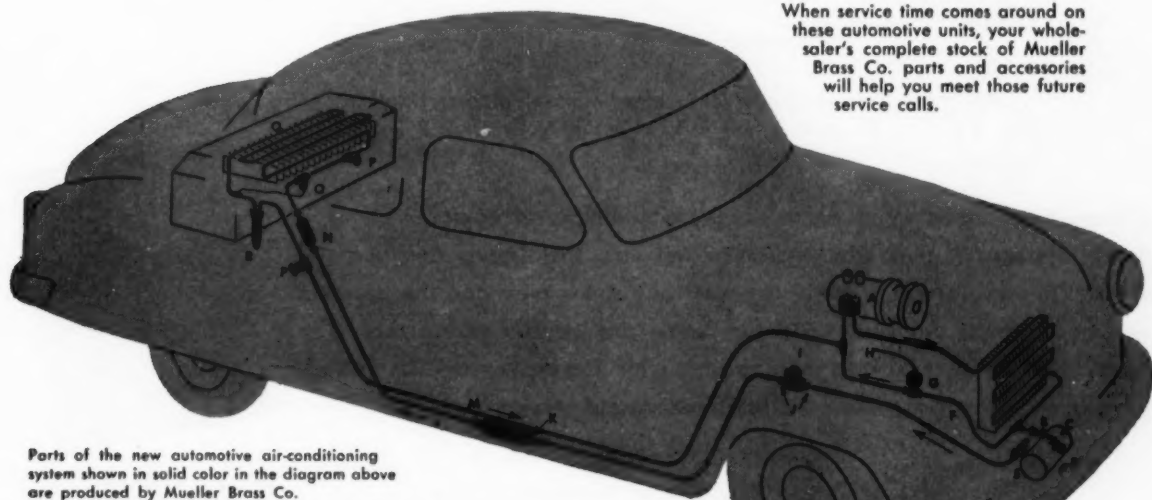


**new air conditioning systems in America's smartest cars  
incorporate MUELLER BRASS CO. products**

Special equipment for many new cars this year includes a complete air-conditioning system: so you can drive along in cool comfort with temperatures in the low 70's and the humidity down where it should be. These remarkable new air-conditioning systems were perfected only after years of research and field testing. Due to unusual problems involved, automotive air-conditioning systems demand component parts that will withstand road shock and stress not found in normal installations. The Mueller Brass Co. refrigeration products used in these systems more than meet those requirements and help insure the splendid performance and unusual efficiency of these new units.

Mueller Brass Co. makes a complete line of parts for virtually every commercial refrigeration need. Their valves, driers, strainers, liquid indicators, fittings and accessories including copper tube bends and coils fabricated to your specifications are well known for exceptional quality and lasting dependability.

Your refrigeration wholesaler can supply you with Mueller Brass Co. parts and accessories . . . or write us today for complete information.



When service time comes around on these automotive units, your wholesaler's complete stock of Mueller Brass Co. parts and accessories will help you meet those future service calls.

Parts of the new automotive air-conditioning system shown in solid color in the diagram above are produced by Mueller Brass Co.

A—Compressor Valves, B—Check Valve, C—Fuseable Plug, D—Receiver Inlet Valve, E—Receiver Outlet Valve, F—By-Pass Line, G—Solenoid Valve, H—Wire from Control Switch, I—Liquid Indicator, J—Flare Fittings, K—Drier, L—Liquid Line, M—Return Suction, N—Strainer or Filter, O—Expansion Valve, P—Line Valve, Q—Evaporator, R—Accumulator



**MUELLER BRASS CO. PORT HURON 10, MICHIGAN**

Circle No. 18 on Reader Service Card

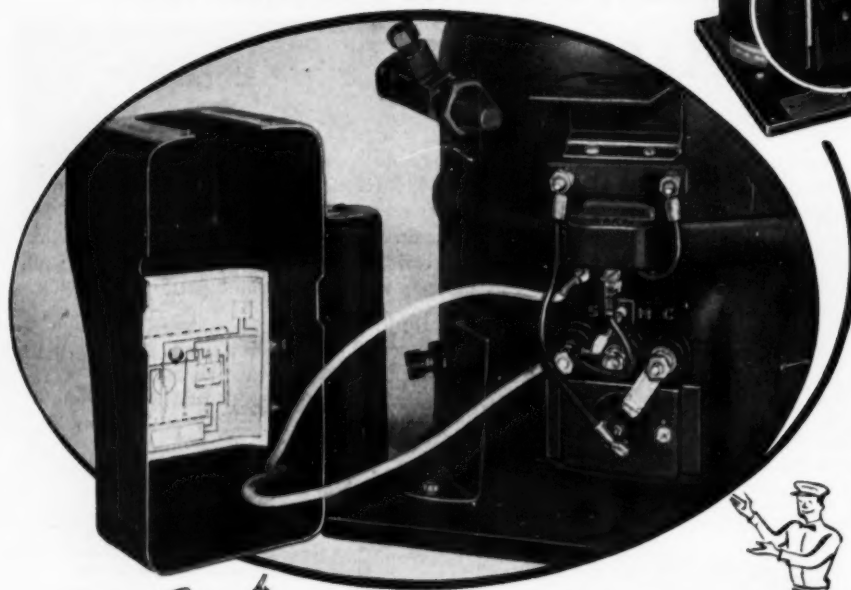
and AIR CONDITIONING • AUGUST, 1953

SEALED STEEL CASE

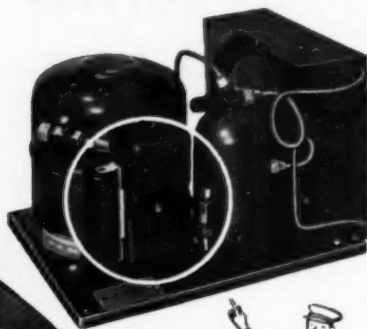
# SERVEL SUPERMETIC

CONDENSING UNITS

afford **UNEQUALLED**  
**ACCESSIBILITY**



Long capacitor leads permit removal of cover for easy access to current supply terminals



Bigger, easier-to-reach terminal box — remove one nut to take off cover



Only wiring required is to connect supply line to 2 terminal posts

Although extremely compact to occupy a minimum of valuable space, Servel Supermetic units are engineered for easy installation and accessibility. Remove one nut, push the cover out of the way and the power supply terminals are wide open for simple and speedy wiring connections. Accessibility is only one reason why Servel Supermetics have gained wide favor with refrigeration dealers and service men.



32 Servel Supermetic models for every commercial refrigeration need —  $\frac{1}{4}$  to 3 H.P.

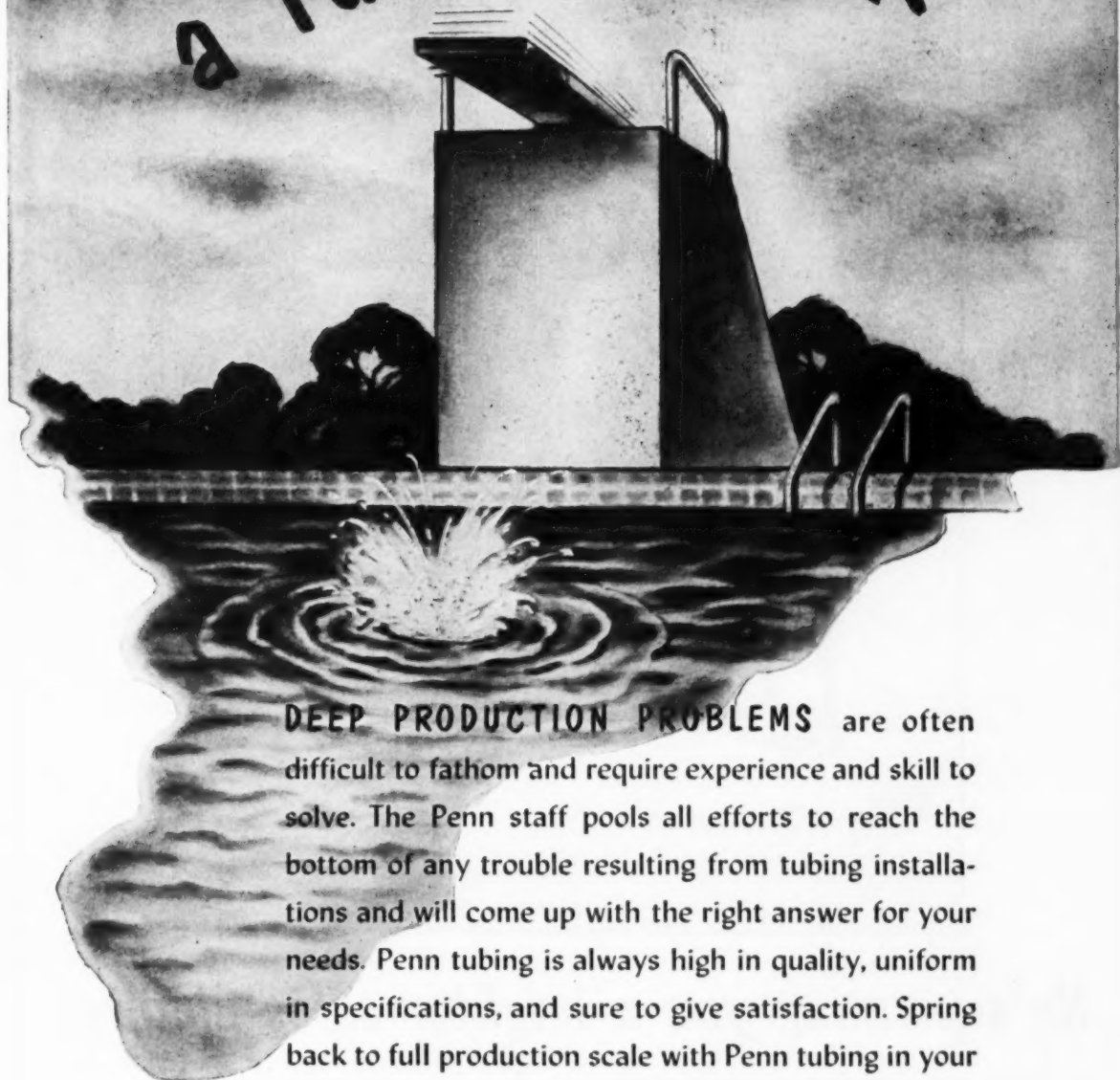
#### WRITE TODAY

for new catalog No. 53 to SERVEL, Inc. Electric Refrigeration Division, Evansville 20, Indiana

# Servel

THE NAME TO WATCH FOR GREAT ADVANCES  
IN REFRIGERATION AND AIR CONDITIONING

# a full GAINER



**DEEP PRODUCTION PROBLEMS** are often difficult to fathom and require experience and skill to solve. The Penn staff pools all efforts to reach the bottom of any trouble resulting from tubing installations and will come up with the right answer for your needs. Penn tubing is always high in quality, uniform in specifications, and sure to give satisfaction. Spring back to full production scale with Penn tubing in your products. Insist on Penn for greater gains in your production form. Send for new charts and literature.



QUALITY TUBING HAS A "PENN NAME"

**PENN BRASS & COPPER COMPANY**

ERIE • PENNSYLVANIA • TELEPHONE 3-1164

Circle No. 20 on Reader Service Card





**How to be sure the glass  
in a refrigerated case  
is sealed from dirt and moisture**

Only *Thermopane*\* insulating glass has the famous *Bondermastic Seal*\*, which prevents moisture and dirt from getting between the panes. This seal is metal-to-glass . . . no organic material that can deteriorate or leak.

To make sure the next case you buy has a *Thermopane* visual front, look for the *Thermopane* name imprinted on the seal between the panes. You'll find it on all the better refrigerated cases.

**LIBBEY-OWENS-FORD GLASS COMPANY**  
2983 NICHOLAS BUILDING TOLEDO 3, OHIO

**LOOK FOR THE NAME ON THE SEAL BETWEEN THE PANES**



## He's painting you a brighter sales picture!

People who are buying refrigerated cases are reading the ad shown here.

Show them you have what they want. Show them *your* cases have *Thermopane*\* insulating glass fronts.

Why not display reprints of the above ad? Let us know how many you want. Libbey-Owens-Ford Glass Company, 2983 Nicholas Building, Toledo 3, Ohio.

*They read the facts  
about Thermopane in:*

ICE CREAM REVIEW	MAY
QUICK FROZEN FOODS	JULY
MEAT MERCHANDISING	AUGUST
FOOD TOPICS	AUGUST



*IF YOU WERE Your Prospect*  
which would sell YOU ?

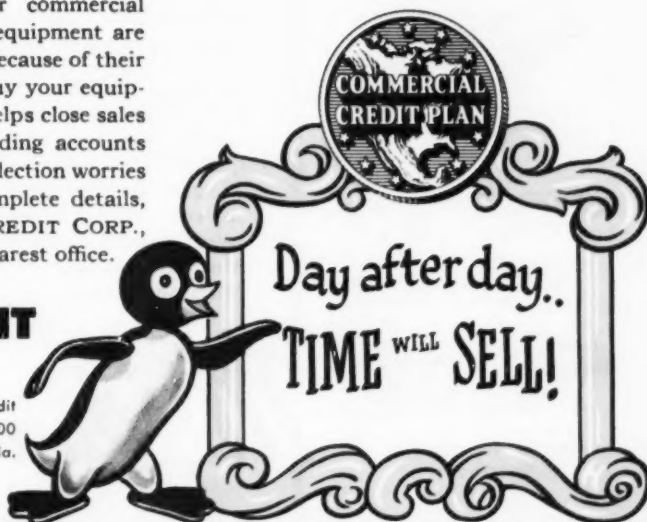


**Feature Time Payments to close more sales  
with the *COMMERCIAL CREDIT PLAN***

**M**ORE AND MORE prospects for commercial refrigerating and air conditioning equipment are becoming, of necessity, **TIME BUYERS**. Because of their cash position it's the only way many can buy your equipment. The **COMMERCIAL CREDIT PLAN** helps close sales . . . improves your cash position by avoiding accounts receivable. And you turn your credit and collection worries over to **COMMERCIAL CREDIT**. For complete details, facts and figures, write **COMMERCIAL CREDIT CORP.**, 14 Light Street, Baltimore 2, Md. or our nearest office.

**COMMERCIAL CREDIT  
CORPORATION**

A service offered through subsidiaries of Commercial Credit Company, Baltimore . . . Capital and Surplus over \$125,000,000 . . . offices in principal cities of the United States and Canada.

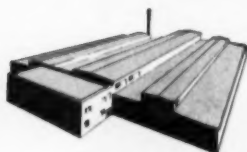


Circle No. 21 on Reader Service Card

# Good Men to Know!



**TED STIKELEATHER**  
Factory Representative  
East Central Territory  
serving you through these  
reputable wholesalers



Plant 1—1600 Broadway N.E.  
Minneapolis 13, Minn.



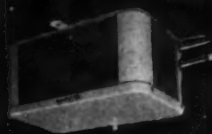
Plant 2—1729 Broadway N.E.  
Minneapolis 13, Minn.



Plant 3—4th and Park Ave.  
Faribault, Minn.



**WALTER MONDAY**  
Radio, TV & Refrigeration Supply Inc.  
Cincinnati, Ohio



**H. H. SHUELL**  
Louisville Mill Supply Company  
Louisville, Kentucky



**HOWARD ZERBE**  
Valley Equipment Company  
Mishawaka, Indiana



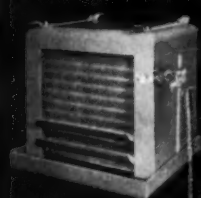
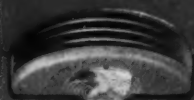
**ELMER H. WIEDWALD**  
Cleveland Hermetic & Supply Inc.  
Cleveland, Ohio



**WILLIAM CLARK**  
Brock-McVey Company, Inc.  
Lexington, Kentucky



**OLIVER CAUDILL**  
Brock-McVey Company, Inc.  
Lexington, Kentucky



## CONSULT YOUR McQUAY WHOLESALER FOR EVERY REFRIGERATION NEED

McQuay is proud of its complete line of *proved and preferred* refrigeration equipment and of the men who represent the company to you. There is a McQuay wholesaler in your territory, qualified by long experience and backed by the entire McQuay sales and engineering organization, who can give you the right answer to your specific problem — whether it's selling help, technical advice or quick action you want. Consult your McQuay wholesaler or write McQuay, Inc., 1643 Broadway N.E., Minneapolis 13, Minn.

# McQuay INC.



REFRIGERATION  
HEATING  
AIR CONDITIONING

MANUFACTURERS OF HEAT TRANSFER EQUIPMENT SINCE 1923

Circle No. 22 on Reader Service Card

AUGUST, 1953 • COMMERCIAL REFRIGERATION

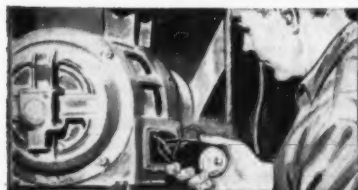
# NEW AMPROBE JUNIOR

VOLT-AMP TESTER

**\$19<sup>85</sup>**  
INCLUDING  
VOLTAGE  
TEST LEADS



**One pocket tester does the complete job.**



#### IT'S A SNAP-AROUND AMMETER

Measures current instantly without shutdowns or breaking of insulation for ammeter connections.

Gives you tester ruggedness with instrument accuracy (within  $\pm 3\%$  of full scale)



#### IT'S A VOLTAGE METER

Measures voltage quickly, accurately on a full-sized calibrated scale; eliminates guesswork.

#### PICK THE RANGE THAT FITS THE JOB:

MODEL "10": 0-10 AMPS A-C 0-125/250 VOLTS A-C  
MODEL "25": 0-25 AMPS A-C 0-125/250 VOLTS A-C  
MODEL "50": 0-50 AMPS A-C 0-125/250 VOLTS A-C  
MODEL "100": 0-100 AMPS A-C 0-125/250 VOLTS A-C

Now every service man can be equipped with this time-saving pocket tool. The Amprobe Junior pays for itself the first month alone by taking the guesswork out of installation and servicing jobs. When you "Amprobe" it, you get it right the first time and eliminate costly call-backs. Write today for Catalog No. 73, Pyramid Instrument Corporation, Lynbrook, New York (Export Division: 458 Broadway, New York 13. Cable: Morhanex).

#### IF YOUR JOB CALLS FOR A MULTI-RANGE AMPROBE:



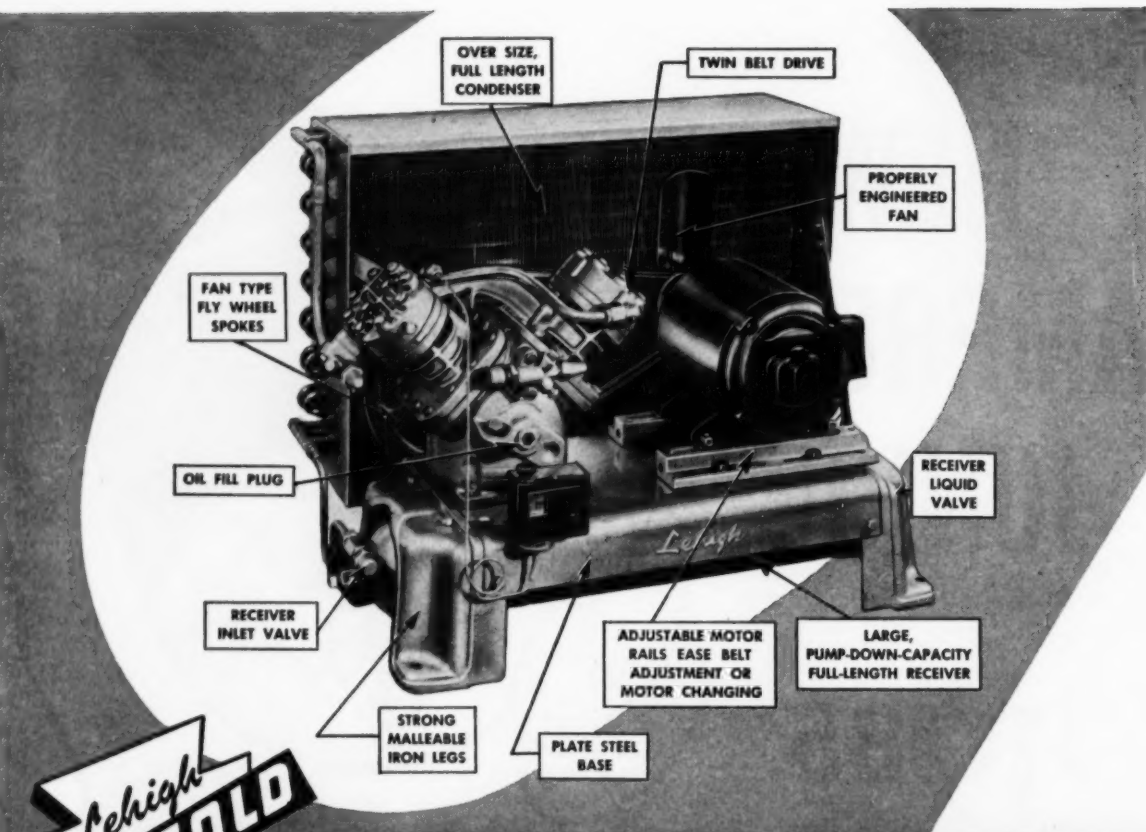
AMPROBE "300"  
0-6/15/30/60/150/300  
AMPS AC.  
0-150/300/600 VOLTS AC.  
\$49.50 COMPLETE WITH  
LEATHER CASE AND  
VOLTAGE TEST LEADS.



AMPROBE "600"  
0-15/30/60/150/300/600  
AMPS AC.  
0-150/300/600 VOLTS AC.  
\$59.50 COMPLETE

AMPROBE "1200"  
0-15/60/150/300/600/  
1200 AMPS AC.  
0-150/300/600 VOLTS AC.  
\$67.50 COMPLETE

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## Lehigh HEAVY DUTY features are both INSIDE and OUT...

CONTROLLED GASKET THICKNESS ASSURES UNIFORM PISTON VALVE-PLATE CLEARANCE.

CHOICE OF CONNECTIONS PERMITS CONVENIENT INSTALLATION OF CONTROL LINES.

ALL CASTINGS OF FINEST CLOSE GRAINED ELECTRIC FURNACE GREY IRON FROM LEHIGH'S OWN FOUNDRY.

VALVE PLATE PRECISION GROUND AND LAPPED. REEDS ARE FINEST SWEDISH STEEL.

ALL MOVING PARTS CONTROLLED TO .0001 TOLERANCE THROUGHOUT.

ALL OVERSIZE BEARING AREAS — AN ASSURANCE OF LOWER, TROUBLE-FREE WEAR.

HEAVY DUTY HARDENED SHAFT TO CONTROLLED STRAIGHTNESS.

E-55 HEAVY-DUTY COMPRESSOR

LEHIGH HEAVY DUTY UNITS FROM 1/2 HP. THRU 5 HP. ARE EQUIPPED WITH MULTIPLE COMPRESSION RINGS.

REMOVABLE CYLINDER BLOCK. NO NEED TO REMOVE COMPRESSION BODY FROM SYSTEM TO SERVICE, REPAIR OR CLEAN CRANKCASE AREA. A REAL TIME & LABOR SAVER!

LARGER CRANK CASE CAPACITY ASSURES AMPLE OIL SUPPLY FOR CONTINUOUS HEAVY DUTY OPERATION.

Lehigh HEAVY-DUTY construction goes much further than rugged pump design. EXTRA CAPACITY is assured by such specifically engineered features as over-size condensers, full-length receivers, fan-type fly wheel spokes and properly designed fans. Servicing is simplified by conveniently located plugs, valves and control connections. Removable cylinder blocks save time and labor in crankcase area servicing. Motor changing and belt adjustment are expedited by adjustable motor rails.

These features are characteristic of all Lehigh HEAVY-DUTY UNITS

1/3 thru 5 H.P.

AIR-COOLED — WATER-COOLED  
COMBINATION AIR-WATER COOLED

... for every HEAVY-DUTY purpose — commercial, industrial, refrigerated transportation. Write for latest catalogs.

All BTU CAPACITIES determined by ASRE STANDARDS

# Lehigh BLU-COLD

Export Dept.  
13 E. 40th St., N. Y.

LEHIGH MANUFACTURING CO., LANCASTER, PA.

DIVISION OF  
LEHIGH FOUNDRIES, INC.

## CONDENSING UNITS and SYSTEMS

Manufacturers of Malleable and Grey Iron Castings, Refrigerating Equipment, Air Valves, Automatic Vending Machines

Circle No. 24 on Reader Service Card

AUGUST, 1953 • COMMERCIAL REFRIGERATION

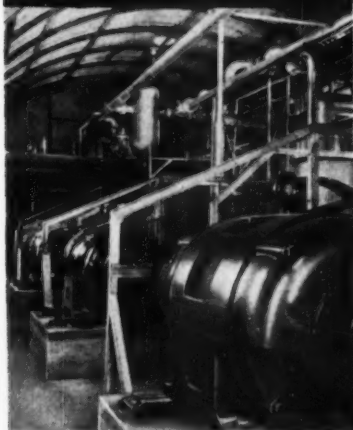




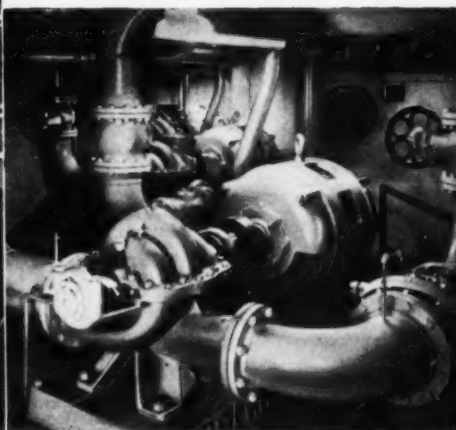
# Large or Small...

## *Century* MOTORS

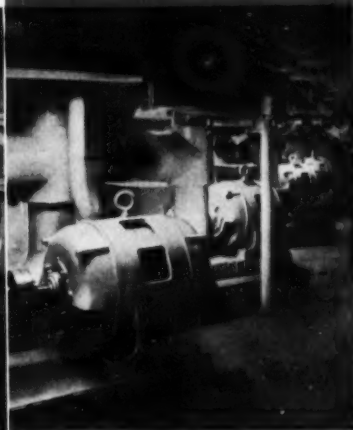
**Are Designed to Provide  
All the Performance  
That Is Built Into the  
Machines They Drive**



Century 125 H.P. motors driving ammonia compressors for ice for the Falcon Dam, which is under construction on the Rio Grande River.



Century 125 H.P. motors on circulating pumps for condensing units. They serve the refrigeration system of a large department store.



Century 125 H.P. motors on circulating pumps for chilled water. Used in the same department store.

**H**ere are some typical examples of equipment powered by large Century motors, which were application engineered for TOP PERFORMANCE.

Matching the operating characteristics of your equipment is made easy through Century's wide line of single phase, polyphase and direct current motors to choose from. They are made in many types, ranging in size from 1/8 to 400 horsepower, with literally hundreds of specifications adaptable to specific applications.

Get Top Performance of your equipment through skillful motor application by specifying Century motors on the equipment you buy and for replacement.



Your nearest Century District Sales Office or a convenient authorized Century Distributor will be glad to give you complete information.



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# NEW! ...from



## The latest development in small, trouble-free SOLENOID VALVES!



**TYPE 2 S**  
1/4" or 1/2" ODS Connections



**TYPE 2 P**  
1/4" or 1/2" Pipe Connections

**BOTH**  
*Unconditionally  
Guaranteed  
for 18 Months*

Jacks-Evans Mfg. Co., some time ago, introduced a line of revolutionary new small solenoid valves. They featured absolutely tight seating and high differential pressure rating — plus — the ability to function properly when installed in vertical lines.

NOW Jacks-Evans is proud to announce that these valves are available with *forged bodies* — with *either* pipe thread or solder connections.

The use of forged bodies permits still further simplification of the internal construction — making these valves the most foolproof, trouble-free solenoid valves that money can buy. Why not ask your refrigeration wholesalers about them TODAY!



### All JE Valves Have These 5 Features of Dependability

- Tight Seating — no bubble tolerance.    ● Long Life — cool coils.
- Simplicity — only two moving parts.    ● Durability — all corrosion-resistant material.
- Opening pressure differential — higher than most others on the market.

*See your local refrigeration wholesaler, or write us today for details.*

JACKS-EVANS MANUFACTURING COMPANY CONTROLS DIVISION  
4427 GERALDINE AVE. • ST. LOUIS 15, MISSOURI



*Chase comes through*

## with Crimped End-Seal Refrigeration Tube



There's a double purpose to the crimped end-seal on all Chase Extra-Soft dehydrated Refrigeration Tube.

First of all, it locks out harmful moisture, dirt and air.

Secondly, unlike the old-style flat seal, it is not necessary to cut off the end to pass the tube through a small opening no larger than the tube itself.



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WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

Circle No. 27 on Reader Service Card

and AIR CONDITIONING • AUGUST, 1953

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Albany †	Cleveland	Kansas City, Mo.	New York	San Francisco
Atlanta	Dallas	Los Angeles	Philadelphia	Seattle
Baltimore	Denver †	Milwaukee	Pittsburgh	Waterbury
Boston	Detroit	Minneapolis	Providence	
Chicago	Houston	Newark	Rochester †	(† sales office only)
Cincinnati	Indianapolis	New Orleans	St. Louis	

*selective orifice gives you*

**accurate flow limiting control**

**General Controls**

**V-200**

*Thermostatic*  
**Expansion Valves**

The V-200 valve also offers compressor overload protection. The orifice assembly is adjustable to meet a variety of installation requirements. Compact in size, the V-200 incorporates decided engineering design advantages such as low-friction, single pusher pin valve movement and a sensitive diaphragm that responds to the smallest change in temperature. Write for Catalog 54-R, and General Controls price sheets Form No. 605.

**GENERAL CONTROLS**

Glendale 1, California • Skokie, Illinois

Manufacturers of Automatic Pressure, Temperature, Level and Flow Controls for Heating, Home Appliances, Refrigeration, Industrial and Aircraft Applications.

**FACTORY BRANCHES IN 32 PRINCIPAL CITIES**

SEE YOUR CLASSIFIED TELEPHONE DIRECTORY



*selective orifice*



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*Chase comes through*

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WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

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*selective orifice gives you*

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1240 Ontario Street  
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2	12	22	32	42	52	62	72	82	92	102	112	122	132	142	152	162	172	182	192
3	13	23	33	43	53	63	73	83	93	103	113	123	133	143	153	163	173	183	193
4	14	24	34	44	54	64	74	84	94	104	114	124	134	144	154	164	174	184	194
5	15	25	35	45	55	65	75	85	95	105	115	125	135	145	155	165	175	185	195
6	16	26	36	46	56	66	76	86	96	106	116	126	136	146	156	166	176	186	196
7	17	27	37	47	57	67	77	87	97	107	117	127	137	147	157	167	177	187	197
8	18	28	38	48	58	68	78	88	98	108	118	128	138	148	158	168	178	188	198
9	19	29	39	49	59	69	79	89	99	109	119	129	139	149	159	169	179	189	199
10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200

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7	17	27	37	47	57	67	77	87	97	107	117	127	137	147	157	167	177	187	197
8	18	28	38	48	58	68	78	88	98	108	118	128	138	148	158	168	178	188	198
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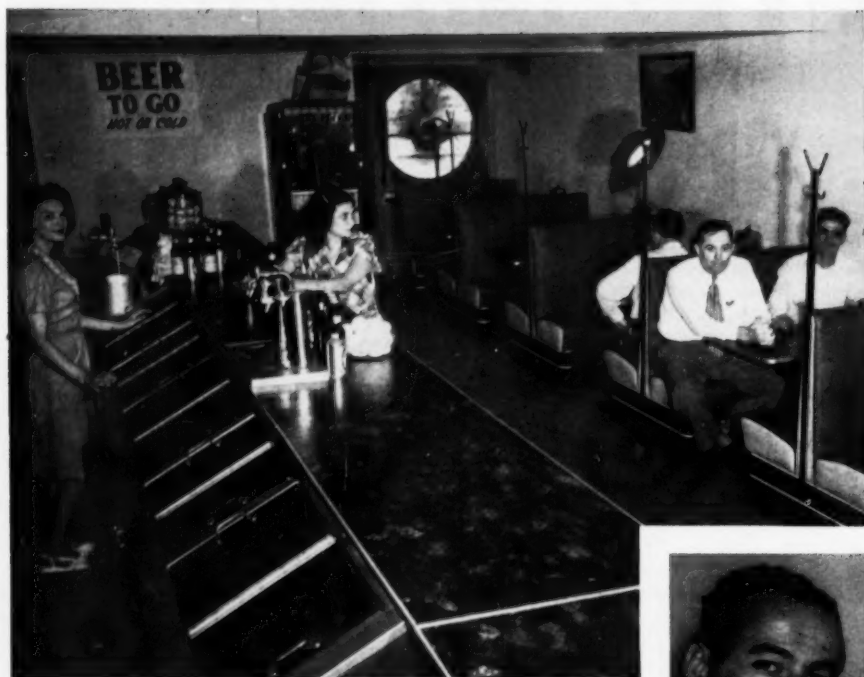
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PETE (left) AND JIM PAPPAS and one of their typical tavern jobs



Get away from competition . . .

*Specialize!*

**J**IM and Pete Pappas who own and operate Pappas Refrigeration Company, Houston, Tex., are staunch advocates of specialization. And the two brothers are successful practicing what they preach.

Specializing the way the Pappas boys look at it, doesn't mean taking a limited, passive attitude. Rather, specializing qualifies them to make a more impressive and dynamic approach.

"When you specialize," exclaims Pete, "your competitors can't touch you."

"On the other hand," Jim cuts in, "wandering around in all fields is

an open invitation to get your ears knocked down."

Following the close of World War 2, Jim and Pete specialized in outfitting cocktail lounges exclusively. As many as 90% of the superlative lounges in the Houston area were installed by these two brothers. They equipped these lounges from front door to back. Then this type of business came to a sudden halt.

"There were getting to be too many swank lounges," Pete explains. "Competition was becoming too keen among them. And each new lounge had to out-do the others.

Inasmuch as these jobs run anywhere between \$15,000 and \$70,000 we thought it wise to get out while the getting was good."

For some time now, the brothers have been specializing in selling beer cabinets to taverns and cafes.

"We know the beer business, and all the details and problems connected with it," says Pete, "and we are not far removed from our former business and contacts. But where we would previously open up as many as 50 accounts a month, each on a big ticket, we now open up 200 ranging between \$500 and \$1500 each."



For your file of  
**MERCHANDISING  
METHODS**

***The Pappas brothers have built  
a profitable business by devoting  
all their efforts to selling one type of job***

Spreading the credit risk out among a greater number of accounts is sound business, the Pappas firm has found. And the gross volume is 25% ahead of their best years of installing cocktail lounges.

Overhead, on the other hand, is greater than in their previous operation. During the lush cocktail installing era, Pete, Jim, and one of the inside men did all the contacting and selling. Now there are seven outside salesmen.

Even with the seven outside salesmen, however, 65% of the total volume is still credited to floor sales.

Unbelievable?

That is one advantage of specializing. Prospects come in voluntarily for advice and recommendations when plans for remodeling are yet in the formative or contemplative stage. What chance does this leave competitors? In most cases they arrive upon the scene too late!

With the Pappas brothers, knowing their business implies knowing their customers' business, too. For this reason, Jim and Pete hesitate to hire experienced refrigeration salesmen. They prefer to hire raw recruits with former tavern or cafe experience and teach them all they need to know about refrigeration to sell it.

"Refrigeration salesmen can sell me," declares Pete. "But my customers are not in the refrigeration

business. My customers are interested in one thing — selling more beer! And doing it with less inconvenience, less mess, and less expense.

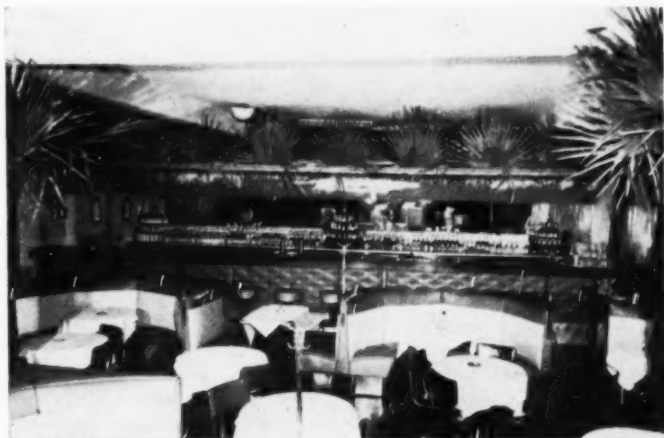
"Talking mechanical and technical refrigeration features to them is just a waste of time and simply leaves them confused. They're only interested in two things — what the equipment will do for them and how much it will cost.

Knowing the customer's business has other advantages. For illustration, a \$35,000 job recently was awarded to the Pappas because they knew the beer dispenser's problems.

Before the new Olympiad was completed, it had been decided they would have to build ice bins large enough to ice down 5,000 bottles! Pete and Jim were called in regarding some contemplated refrigeration and fixtures. Upon analyzing the Olympiad's problem, Pete convinced them ice bins would be to their detriment. Consequently, he sold them on using, instead of the ice bin, two 90-case boxes; three 72-case boxes, and one 22-case box.

These boxes were not sold on the premise of one make of box being superior to all others. The Olympiad was sold on the idea that

*Continued on page 48*



**FANCY COCKTAIL LOUNGES** like this were the type of installation in which the Pappas brothers specialized until they found that the neighborhood tavern business was more sound.



# HOW TO MAKE A PROFIT

in the refrigeration and air conditioning business

by **R. S. Lafferty**, vice president, Hill-York Corp., Miami, Fla.

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## Is A Profit Justified?

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**I**N discussing whether or not a profit is justified, it is our opinion that a net profit is the only excuse for a company to be in business.

A profit is really not a living for somebody, nor is it a percentage of sales, nor is it a percentage of capital employed. A profit is, rather, a sum of money over and above the proprietor's ability to earn with others. It must be sufficiently large to justify the money invested, the risk involved, and the employment of others.

If any business does not operate at a profit, its employees cannot benefit by opportunities in the future, the firm cannot expand, it cannot employ more personnel, and it prevents other companies from

making a profit in a good businesslike manner so as to be worth their part in our national economy and particularly in our industry.

No one, I am sure, thinks for one moment that General Motors could have negotiated the five-year deal with the union and would have been able to pay the additional increases unless they had made a substantial profit to give them the backing and the confidence to enable them to help the standard of living of all of their employees.

A proprietorship or corporation doing business and not making a profit is like a sore or a boil in the economy of our country and of the industry. It should not and need not continue.

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## How To Make A Profit

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In discussing the second phase of this very important subject of profit — namely, how to make a profit — I would like to first clarify one very great misunderstanding and improperly applied mathematical formula relative to the difference between the mark-up on cost and the gross profit on the sales dollar.

All merchandisers, all retail businesses, have systems and methods that have been developed and

promoted to help them realize the facts of business life, and our industry has been at fault in not having any centralized educational accounting system to help it.

National Cash Register has spent thousands and thousands of dollars to educate retailers relative to good business practices and to encourage them to look upon merchandising of all types from the standpoint that expenses are a percentage to the sales

## Check Your Own Operating Costs Against These National Averages

	OVER		UNDER	
	\$100,000 IN SALES		\$50,000 IN SALES	
Sales . . . . .	100%		100%	
Cost of Sales . . . . .	71.0		66.5	
Gross Profit . . . . .	29.0		33.5	
Operating Expenses . . . . .	25.6		28.9	
Net Profit Before Income Tax . . . . .	3.4		4.6	
<i>Expenses</i>				
Sales Commissions . . . . .	7.2		4.1	
Traveling & Auto . . . . .	1.7		3.8	
Advertising . . . . .	.7		.5	
All Other Selling Expenses . . . . .	1.0	10.6	1.3	9.7
Management Salaries . . . . .	4.2		11.0	
Clerical Salaries . . . . .	2.1		1.8	
Rent & Building Expense . . . . .	1.5		2.4	
Bad Debts . . . . .	.4		.4	
Insurance, Taxes & all other expenses . . . . .	3.7	11.9	1.8	17.4
Shop Expenses . . . . .	3.1	3.1	1.8	1.8
Total Expense . . . . .		25.6		28.9
Realized Mark-Up on Cost . . . . .		40.8		50.4

dollars, according to the best accounting practices, not a mark-up on cost.

Serious differences arise between these two concepts as shown clearly by the following table:

RELATIONSHIP BETWEEN GROSS PROFIT AND MARK-UP			
Gr. Pr.	% of Sale	Mark-Up	% of Cost
	1.0		1.0
	10.0		11.0
	20.0		25.0
	30.0		42.9
	33.3		50.0
	40.0		66.7
	50.0		100.0

For instance, you can see by this table that 11.1% mark-up on cost is only 10% gross profit, whereas, 50% mark-up on cost is only 33⅓% margin on the sales dollar, and 100% mark-up is 50% profit on the sale of the equipment.

Many of us have had a habit of thinking that gross profit meant a potential net profit. It does not and never will unless we can make more margin of gross profit on the sales dollar than our expenses are when they are apportioned to the sales dollar. Most accounting allocations or apportionments — and, in

fact, expenses including taxes and workmen's compensation — are more nearly and more properly apportioned to the sale than they are to any other one factor of our business.

We find after many investigations and a thorough review of Dun and Bradstreet reports available to all of us that the large business has just as large an expense or overhead factor to the sales dollar as the small fellow. There are two schools of thought — some think that the individual in a small business can operate more reasonably, and vice versa. The fact remains, however, that the more business any company does, the more expenses increase. And this increase stays surprisingly close to being in exact proportion to the sales dollar.

The small operator may be slightly more efficient, with less indirect expenses, but yet his own properly allocated living expenses (whether he takes it in the form of a salary or whether he just wants it charged to the business on a yearly basis) makes his overhead just as large if not larger than an enterprise doing four or five times as much business.

Take a look at the sample operating statements which accompany this article. The first column represents the air conditioning and refrigeration industry.

It is an average of profitable operations of many people all doing over \$100,000 worth of business yearly. Prepared by Dun and Bradstreet, it covers a period of over four years. The second column, adjoining for comparison sake, shows the same expenses averaged for many businesses doing \$50,000 worth of business or less.

Note that the larger businesses make a net profit of 3.4% of sales and the smaller business 4.6% of sales, yet the small enterprise has slightly increased overhead in proportion to the sales dollar than the larger business, but has worked on a little higher margin

of gross mark-up. This may be due either to efficiency in handling of the work executed, the higher percentage of service business at a profitable mark-up, or to a little higher efficiency in operations.

All that it takes to make a profit is to have a higher margin of profit on the sale than your expenses are in proportion to the sale. You can make more profit by raising the mark-up and lowering expenses. It is as simple as that — and yet many, many violations of this fundamental law of mathematics or accounting or good business practice is in evidence, particularly in our industry.

## What Prevents A Profit

The third important and interesting problem is what prevents a profit. Many of our fellow business men have gone out of the air conditioning and refrigeration field either due to being bankrupt or not making money, even though they still have some left. They have not received enough margin of profit to stay in business or to make it interesting enough to them to want to stay in business.

It is very difficult to operate without having total sales expenses somewhere around 10%, including advertising and commissions. Also it is very difficult not to have operating management salaries, some office salaries, rent, and provisions for bad debts. Without proper insurance you should not be in the air conditioning and refrigeration field, and certainly taxes and many other government costs are actual facts, not theory, and should in your own mind be apportioned to the sales dollar.

Note that it takes 40.8% average mark-up on cost to make a gross profit of 29% on the sales dollar. Also note that it took 50.4% mark-up on cost with a small business enterprise to make 33.5% profit on the sales dollar. Now, when we take expenses in the case of the larger enterprise of 25.6% and that of the smaller business of 28.9%, it can be clearly seen that no money can be made in our industry at mark-ups of 25% or 33⅓%.

The ratio of the gross profit to the sales dollar will be so small that the business will have a net operating loss. If we omit some necessary expenses that should be incurred for our business's future, includ-

ing such things as advertising, insurance, and provisions for bad debts, no economic benefits to yourselves as owners will result.

If any of you who are not in a management position with the company for whom you work want to really get ahead you should take an interest with your owner in the making of a profit. You cannot as individuals, nor can any union man as a productive worker for a company, advance in your field without being selfishly interested in your employer making a profit. He is not worth working for, frankly, if he doesn't have sufficient business ability to get the facts and then to act to get the results to make a profit.

Again I repeat, all that it takes to make a profit is a gross profit greater than the expenses on a percentage basis compared to the volume of business.

If any of us (and we all do) take jobs with a low margin, other installations and other orders must be received with a higher margin so that our average will come out in accordance with or superior to the operating statements illustrated. Too many of us just try to see how low we can get our expenses. We operate inefficiently, and work harder and harder to sell at lower and lower prices.

It is amazing how many things we do to see how cheaply we can sell our merchandise or our contracts. We should be concerned with what is the minimum price at which we can profitably sell our merchandise and our services, and be quite willing to turn down orders and business where the buyers seem to be in control of the situation.

## What To Do About It

Now, the fourth and last step — what we should all do about it. We do have several choices. We can cut expenses to the bone, work for a very small sum of money, and either eventually get out of business or continue on just making a bare living. But really, anyone in either a small or a large business should have absolutely no right to plan his future this way. He should make a good wage if he is able to either sell, design, or install this equipment working for

some other individual or organization.

The real answer is to study the accounting or profit phase of the figures herewith presented, to get any other information about our own operation and others and make comparisons. We should budget our expenses to the sales dollar at the start of any fiscal period, then follow that budget, making comparisons and selling with sufficient mark-up so that this budgeted net profit will actually and in truth result.





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The seal is made in such a way that it does not change the diameter of the tube. This makes it possible to pass the tube through any opening large enough for the tube itself. Economical tube sizes range from  $\frac{1}{8}$ " to  $\frac{3}{4}$ " O.D.

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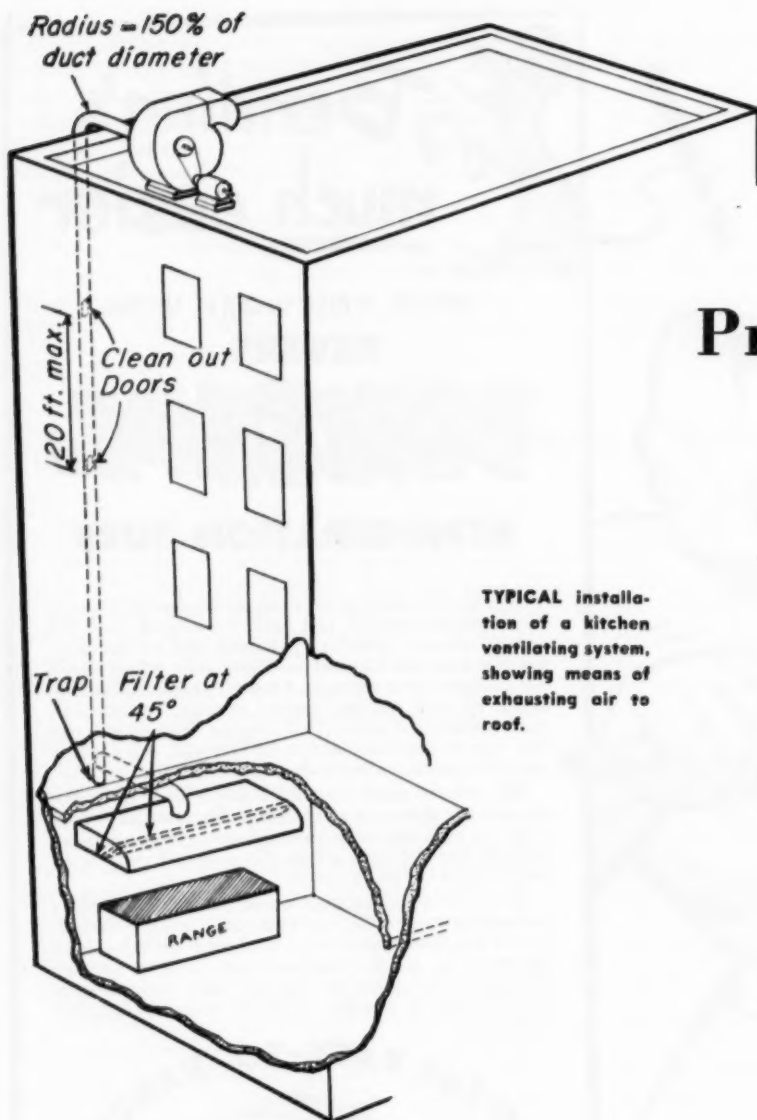


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**TYPICAL** installation of a kitchen ventilating system, showing means of exhausting air to roof.

## Proper Design In

**D**ESIGN details of exhaust hoods for commercial kitchen ventilating systems are subject to local regulations, and it is well to check with local fire, health, and industrial commission authorities before proceeding with a design.

Those who are experienced in the design and installation of kitchen exhaust hoods may find that individual cases will require deviation from the results which will be obtained by following the suggestions in this article. However, if these

**DIMENSIONAL DIAGRAM** of exhaust hood, showing factors needed for all calculations:

**W**—Width of surface covered by hood (in feet)

**L**—Length of surface covered by hood (in feet)

**H**—Height above floor of surface covered by hood (in feet)

**A**—Distance from floor to base of hood = convenient head clearance (in feet)

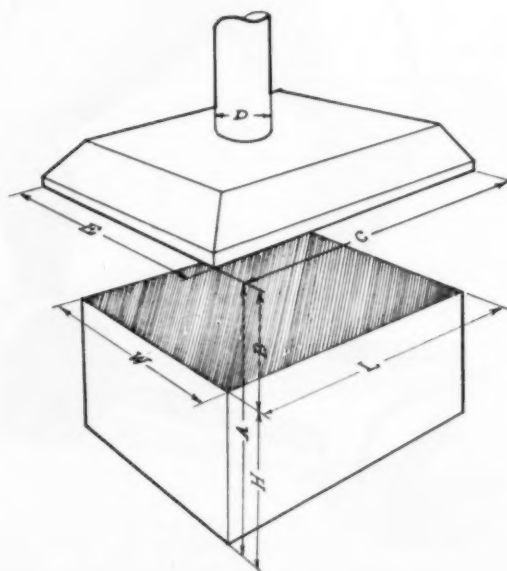
**B**—Clearance between base of hood & surface covered by hood =  $A - H$  (in feet)

**E**—Width of hood opening =  $W + .8B$  (in feet)

**C**—Length of hood opening =  $L + .8B$  (in feet)

**Q**—c.f.m. exhausted =  $C \times E \times 100$  cfm

**D**—Diameter of exhaust duct =  $.302 \sqrt{Q}$  inches



# Is Important Kitchen Exhaust Systems

procedures are followed, it is believed that hoods which are satisfactory for most situations will result.

Determination of the specifications of a kitchen exhaust system requires only the use of simple arithmetic and reference to simple curves and tables. The critical specifications to be determined are: dimensions of the hood opening, volume of air to be exhausted, number of filters required, diameter and length of the ducting from the hood to point of discharge, and the static pressure against which the blower must work in removing the required volume of air. These factors will be discussed separately in the following paragraphs.

The dimensions of the base of the hood are in all cases larger than the cooking surface to be covered by the hood. The amount of oversize of the hood dimensions depends on the clearance between the base of the hood and the top of the range or other cooking surfaces which are served by the hood. Many successful hoods have been made by sizing the hood base to overlap the cooking surface on each side by 4/10 of the above clearance.

The volume of air exhausted should be 100 cfm per square foot of hood base for hoods of the type having one side against a wall, and 150 cfm per square foot of base area for hoods suspended in the center of a room.

To determine the number of filters required, divide the total quantity of air to be exhausted by the cfm rating of the filter. The manufacturers rating of the filters should be used. If the above procedure indicates a fraction of a filter, select the next larger whole number. When possible, it is al-



ways best to specify one of the standard commercial sizes.

To determine the diameter of the exhaust duct, it should be assumed that the air velocity in the duct is about 2000 feet per minute. The cross sectional area of the exhaust duct in square feet can then be calculated by dividing the cfm which must be exhausted by 2000, as shown here:

$$\text{Duct Area} = \frac{\text{cfm to be exhausted}}{2000}$$

This area can be easily converted to a diameter. The nearest whole figure is usually used.

The length of the duct is determined by the point at which the exhaust must be emitted to avoid

creating a nuisance. This is frequently above the roof of the building.

The static pressure against which the blower must work in removing the quantity of air which is to be exhausted is usually calculated as the sum of four items:

(1) the resistance of the grease filters; (2) the "entrance loss" which occurs when the exhaust air passes from the exhaust hood to the exhaust duct; (3) the resistance of the exhaust ducting; (4) the resistance caused by the force of natural wind currents blowing on the exhaust opening (because of the low velocities involved, entrance losses at the hood are negligible).

The resistance of the filters should be based on the manufacturers rating. Rather than using the clean resistance of the filter, a value should be used which represents the filters resistance after it has accumulated a substantial quantity of grease. If a value of .2" of water is used, it will be ample for most filters.

The static pressure "entrance loss" occurring where the exhaust duct attaches to the hood will be about .1" water when an exhaust duct velocity of 2000 fpm is used, and there is no transformer where the exhaust duct attaches to the hood.

The resistance of the ducting is most easily obtained by referring

*Continued on page 49*



# **"Precision-Formed Cups on NIBCO Wrot Fittings Save Me Silver Solder"**



Solder cups on NIBCO Wrot Fittings always fit the tube *just right*. That's because they are formed from tubes with mirror-polished dies, held to "gnat's whisker" tolerances.

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# NEWS OF THE INDUSTRY

## RECONY CORP. NEW NAME OF COMPANY

Refrigeration Engineering Corp. and its Reco Products Div. has been merged with Recony Corp. at the same address and having the same officers, directors and stockholders, it was announced by Andrew J. Asch, Jr., president.

Financial structure of Recony Corp. is thus enhanced by the net worth of the former Refrigeration Engineering Corp. to allow for expanding operations.

One of the considerations involved in the change was confusion arising from the fact that several concerns are operating in the field using the name, Refrigeration Engineering Corp. Use of Recony, which is a contraction of Refrigeration Engineering Corporation of New York, will eliminate this problem.

In spite of fire which destroyed its Emporia, Va. plant in February, the company had a sales volume of well over 1 million during the past year, Asch said.

## RECORD DELTA COIL PATENTS GRANTED

Patents covering the manufacture of the Record "Delta" coil have been granted by the United States Patent Office, according to an announcement released by Hy Jarvis, vice president and general manager of Refrigeration Engineering, Inc., Los Angeles.

The design patent on the unit was granted in February, 1952, and the patent covering the unit was granted under patent No. 2,633,713 dated April 7, 1953. The Delta coil fits into the corner of a reach-in or walk-in refrigerator.

## 3RD EXPANSION FOR GENERAL CONTROLS

Marking the company's third expansion in the past year, plans for immediate construction of a new plant in Burbank, Calif., were announced by W. A. Ray, president of General Controls Co.

The new 120,000 sq. ft. manufacturing plant, designed to augment constantly growing production of the company's Grayson- Greenamyer Appliance Controls Div., will be located on a previously acquired site at Alameda and Flower Sts. in Burbank, just across the city boundary line from the General Controls main plant and headquarters in Glendale.

This latest expansion, following construction of a new midwest plant in Skokie, Ill. last fall and a substantial addition to the company's aircraft division in Glendale earlier this year, is intended to give General Controls additional production capacity for appliance controls and to free areas in the Glendale plant for increased production of other automatic controls.

The new plant is being designed and constructed by

*Continued on page 45*

## 189 EXHIBITORS ALREADY LINED UP FOR NOVEMBER ALL-INDUSTRY SHOW

In a move to widen interest in and increase attendance at the 8th All-Industry Refrigeration & Air Conditioning Exposition, scheduled for the Municipal Auditorium, Cleveland, Nov. 9-12, the Exposition Committee is directing advance stories and information about the Show to all the various fields in which refrigeration and air conditioning equipment is used.

The public relations firm of Banner & Grief, New York City, has been engaged

to handle advance publicity for the Show, and is directing information concerning it to publications reaching architects, engineers, building owners, restaurant and food store operators, printing firms, department stores.

All of these large users and potential users of refrigeration and air conditioning equipment are being invited to visit the All-Industry Show, to see the newest and best types of equipment available for their fields, and to obtain the counsel and advice of experts on their application problems. This new approach will boost attendance at the Show considerably, it is believed.

With 189 exhibitors already signed up, the 8th All-Industry Show is already assured of being the largest in history. There were 170 exhibitors at the last Show, held in November, 1951, at Navy Pier, Chicago.

W. A. Siegfried, chairman of the Show Committee, reports that some exhibit

*Continued on page 44*

## McINTIRE RESUMES FULL PRODUCTION

McIntire Co. is now in full production at their new plant in Livingston, N. J. With approximately 15,000 sq. ft. of working space, plus additional equipment in order, the company estimates that production output can be doubled over that of the former plant in Newark. Complete laboratory facilities have been installed under the direction of a chemical engineer.

## COMMITTEE ARRANGES FOR 15,000 EXPECTED TO SEE SHOW



**EXPOSITION COMMITTEE** of the 8th All-Industry Refrigeration and Air Conditioning Exposition in session to make arrangements for expected attendance of 15,000 at Cleveland next November. Left to right: George E. Mills, Show Director; W. A. Siegfried, Superior Valve & Fittings Co., chairman; H. A. Harty, Wolverine Tube Div., Calumet & Hecla, Inc.; Louise Perkins, Housing Secretary, Cleveland Convention Bureau, Lud Emde, Temprite Products Corp., and H. F. Coggins, Detroit Controls Corp.

## BRUNNER PRESIDENT STARTS NEW SITE



**BRUNNER BREAKS GROUND** for new Gainesville plant. Picture shows A. G. Zumbrun, Brunner Mfg. Co. president, digging first spadeful of earth for Brunner's new Southern plant. Looking on is Clayton McLendon, vice president of C & S Banking System, who aided Brunner in its search for a suitable location. At left Summie Kinningham, chairman of Gainesville C of C New Industries Committee, and Carroll Daniel of Daniel Construction Co., discuss plans with Bill Cashin, a Brunner director.

## BRUNNER TO BUILD PLANT IN GEORGIA

Brunner Mfg. Co. will expand its compressor manufacturing operations with the construction of a new plant in Gainesville, Ga., it has been announced by A. G. Zumbrun, president. Headquarters of the company are in Utica, N. Y.

A modern, one-floor, completely air conditioned plant will be constructed on a 16½ acre site at Gainesville. The plant will be of jumbo brick construction, and will be windowless. New production equipment will be installed and the entire plant will represent an investment of over \$1½ million.

Entire production of the Gainesville plant will be devoted to the manufacture of the company's new "Brunner-Metic" semi-hermetic refrigeration compressor, which has been shown at recent exhibits and industry conferences. Beginning with the opening of the new plant this fall, semi-hermetics from ¼ through 2 hp will be produced. Later a complete range of these units ¼ through 5 hp will be manufactured at Gainesville.

As this plant will be operated entirely separately from the Utica plant, no open

type compressor production is scheduled.

The new plant will be known and operated as the Brunner Co. A new corporation is being formed and all stock will be held by Brunner Mfg. Co. The new corporation will be operated as a subsidiary entirely separated in management affairs from the Brunner headquarters.

Although no open-type units will be made in Gainesville, a warehouse to serve the entire southeastern area will be maintained. Plans also call for stocking a wide range of air compressors.

Introduction of the new Brunner-Metic and sales increases in its other refrigeration and air conditioning products created a need for more plant facilities, Zumbrun said. However, expansion possibilities in Utica were inadequate, and Brunner directors voted to establish a plant elsewhere, preferably in a southern location closer to one of the greatest potential markets for refrigeration and air conditioning equipment.

Gainesville was selected after a study of 12 cities in five states. The city is said to offer excellent truck and railroad facilities.

## SPRAGUE CO. BUILDS CAPACITOR PLANT

Sprague Electric Co., North Adams, Mass., is constructing a new plant in the Blue Ridge Mountain area which will be used for the manufacture of capacitors. Occupation of the new site is expected about Nov. 1 of this year, and a small portion of the 250 employees to be employed will begin work training then.

The plant will be located in extreme northwestern North Carolina, about seven miles from West Jefferson. It will be on a 30 acre tract and will contain 50,000 sq. ft. of floor space. This is the company's seventh branch operation.

## TYLER AND AGENCY GET AD AWARD

Joseph B. Hennion, representing Tyler Fixture Corp., and James B. Taylor, representing Tyler's advertising agency, Jones & Taylor & Associates, recently accepted for their respective firms an Award of Merit "for the most effective use of advertising in industrial publications in 1952" in a national competition sponsored by the Associated Business Publications.

## SHOW . . .

*Continued from page 43*

space is still available, but that reservations should be made immediately, since it appears certain that the Show will be a sell-out very soon.

Persons who plan to attend the Show are urged by the exposition management to make their hotel reservations as soon as possible. Reservations can be made through the Housing Bureau, Cleveland Convention Bureau, Terminal Tower, Cleveland, Ohio.

The Convention Bureau has guaranteed a block of 3,400 hotel rooms to the Show Committee, but the only way to be sure of the entire number of rooms is

to have reservations in the hands of the hotels long in advance of Show time.

Exhibitors and members of the Air-Conditioning and Refrigeration Institute will headquarter in the Hollenden Hotel; REWA will use Hotel Cleveland as its headquarters; and other industry associations have been set up as follows: RSES, Hotel Carter; RACCA, Hotel Carter; NCRSA, Hotel Statler.

In making reservations, the preference for a certain hotel should be mentioned, and the kind of room desired should be specified.

It is estimated that some 2,500 experts on all kinds of refrigeration and air conditioning equipment will be in attendance in the various manufacturers' exhibits. Visitors thus should be able to obtain advice and help on practically any problem.

All of the industry's major trade associations already have scheduled their annual meetings during the Show period, and an extensive program of technical sessions has been scheduled for the week.

## PITTSBURGH VALVE BACK IN BUSINESS

Pittsburgh Valve Co., formerly known as Pittsburgh Valve & Fittings Co., has resumed manufacturing operations as a subsidiary of Sterling Faucet Co. of Morgantown, W. Va., according to J. W. Ruby, Pittsburgh Valve president.

Location of the company's plant has been moved to Reedsville, W. Va., from Barberton, Ohio. Many of the former staff are associated with the company at the new location, Ruby said.

The word "Fittings" has been dropped from the company name because at present the company plans to manufacture only brass and bronze valves. The first four product lines are threaded gate valves, copper gate valves, globe valves and check valves. A new illustrated price list will be sent to the trade soon, Ruby said.

## BALLY APPOINTS NINE OUTLETS

Bally Case & Cooler Co. has appointed nine factory franchised outlets in northern New Jersey to distribute its line of refrigerated cases and coolers. Outlets named by the company include: B. B. Rider & Co., Clifton; Fisher & Hughes, Morristown; Modern Refrigeration Co., Jersey City; Tempco Products, Newark; Middletown Refrigeration Co., Middletown; Progressive Refrigeration Co., Trenton; J. W. Finley & Son, Toms River; Don Martin Commercial Refrigeration Co., Atlantic City; Cumberland Refrigeration Co., Vineland.

## EXPANSION . . .

*Continued from page 43*

The Austin Co. Completion is scheduled for late this summer.

Construction of the 300 x 400' plant will be of pre-cast concrete using tiltup sidewalls. There will be five

spans of 60' each, and a minimum interior height of 14'. The roof structure will be of steel supported on steel columns, with a wood deck on wood purlins. A multi-truck dock inside the plant is included in the design.

The new plant will provide unusual flexibility in facilities for industrial waste disposal. Numerous waste discharges throughout the plant will allow temporary or permanent placement of production machinery with maximum efficiency in the disposal of industrial waste.

## McQUAY COAST REP TAKES ON PARTNER

George D. Serfass has become a partner of William Tenny in the firm of Tenny & Serfass, sales representatives for McQuay in the Los Angeles area. Before entering the partnership, Serfass was with Kilpatrick & Co. of Los Angeles as an air conditioning and industrial refrigeration sales engineer.

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**DEAN**

"JOB TAILORED"

**DEAN COLD PLATES** for FROSTED FOOD DISPLAY CABINETS ICE CREAM CABINETS SODA FOUNTAINS FARM MILK COOLERS FARM FREEZERS LIQUID COOLERS WINDOW DISPLAYS FOOD COUNTERS LOW TEMPERATURE TEST ROOMS REFRIGERATED TRANSPORTATION Plates also available for Baudelot-type Coolers

## EVAPORATOR PLATES

Now you can get your plates exactly as you want them . . . any size . . . any shape . . . any metal! Think what this means in time saved . . . **MONEY SAVED!** Before you buy another plate, get the facts on DEAN "Job tailored" cold plates. It will be well worth your while! Ask your jobber, or write

**DEAN PRODUCTS, INC.**  
1042 Dean St., Brooklyn 38, N.Y.  
Sterling 9-5400  
Write for Technical Data Book

# Your Sales are the payoff

**AUTOMATIC KUBER**

**SELF CONTAINED BLUEBIRD**

**SELF CONTAINED BOTTLE COOLER**

**DRAINBOARD**

**ICE CUBE MAKER 12 TRAY**

**PRE-COOLER**

**DIRECT DRAW**

**LA CROSSE**

**THE LINE THAT'S PROFIT DESIGNED FOR YOU**

**LA CROSSE COOLER CO.**  
2814 LOSEY BLVD., SO.  
LA CROSSE, WISCONSIN

**EXPORT OFFICE:**  
80 BROAD ST.  
NEW YORK CITY  
CABLE: EXIMPORT

Circle No. 33 on Reader Service Card

and AIR CONDITIONING • AUGUST, 1953

# NOW.. THE ICE-CUBER YOU CAN COUNT ON

**FULLY AUTOMATIC ICE-FLO!**

SINCE 1947

## FIVE ICE-FLO MODELS

Sizes from 1/2 h.p. to 1 1/2 h.p. The smallest makes 2520 deluxe size cubes daily. The largest delivers 10,800 per day. Pull out storage cabinets held from 8 to 12 hrs. production.

**THE ORIGINAL Solid-Cube Ice Maker** for Hotels, Restaurants, Clubs, Bars, Cafeterias, Schools, Hospitals, Institutions, Drug and Chain Stores.

**A DOOR-OPENER** to better ice service, Ice-Flo automatically produces sparkling clear, solid, extra-large ice cubes in quantity at point of use. The result of years of research, scientifically shaped Ice-Flo cubes don't melt or stick together. They last longer in drinks and in storage because they are solid.



**DEPENDABLE • ECONOMICAL • STURDY**

WRITE FOR DETAILED INFORMATION

**Esmond Manufacturing Company**  
ESMOND RHODE ISLAND

Circle No. 36 on Reader Service Card



## SELF-SERVICE FINALLY REACHES ALASKA



ALASKA'S FIRST self-service super market (above) is Carr's Food Center, which occupies the larger part of a new 70 by 90 foot building in Anchorage. The market is completely equipped with modern refrigerated cases and coolers made by Bally Case & Cooler Co., Bally, Pa. Shown in the photo below are Lawrence Carr (left), owner of the market, and Homer Mosely, owner of Homer's Refrigeration Service, Anchorage, who installed the equipment. The market's lineup includes two-deck open style frozen food cases, self-service meat cases, and extra wide fruit and produce cases. Stymied by a maritime strike in Seattle, the dealer loaded the cases on an open barge and towed them to Anchorage behind a tugboat in time to make the market's grand opening.



## DRYOMATIC NAMES MIDWEST AGENCIES

Dryomatic Corp. has appointed several new sales and service representatives in the Middle West. The new appointees, and the territories served, include: J. A. Currie, Chicago area; O. C. McNairn, Cleveland-Akron area; N. L. Pearson, general Illinois area; Alvin R. Close, northwestern Ohio, west of Mansfield; R. C. Schneider Co., Inc., Wisconsin; Indiana Weathermakers, central Indiana; K & K Sales Co., for Minnesota, Iowa, North and South Dakota, and Charles E. Allen, Michigan.

## VA. SMELTING MAN AWARDED "SAMMY"

George A. Anderson, New York representative of Virginia Smelting Co., was honored as a recipient of the annual "Sammy" award by

the Hampton Roads Sales Executives' Club at a recent meeting in Norfolk, Va.

This is the second annual presentation of the club, a national organization. The club originated this plan in 1951 as a means of rewarding noteworthy achievement of salesmen. The "Sammy" is to the salesman what the "Oscar" is to the Hollywood Star.

Anderson has been a member of the "Virginia" Sales Staff for 19 years.

## ACME APPOINTS NORTHWEST AGENCY

R. E. Chase Co. of Tacoma, Wash., has been appointed direct factory representative and sales engineers for Acme Industries, Inc. to cover the states of Washington, Oregon, Western Montana and northern Idaho. Officers of the firm include Roger E. Chase, who originated the

company, consultant, Harold F. Warren, president and general manager, Hobart Teneff, vice president, and W. E. Wooley, secretary-treasurer.

Branch officers are located in Seattle and Spokane, Wash., as well as in Portland, Ore. Manager of the Seattle store is Frank Ozanne. Hobart Teneff is manager of the Spokane office and W. E. Wooley is manager of the Oregon operation. Helen Wooley, one of the few women professional engineers, assists her husband in the Oregon office.

## DOW NAMES NEW STYROFOAM OUTLET

Sherman W. Putnam Organization, Inc., of Chicago has been named a distributor of Dow Chemical Co.'s Styrofoam products.

## REMINGTON SERVES CANADIAN MARKET

Remington console and window model air conditioners will be distributed in Canada by Remington Air Conditioning Co. (Canada) Ltd., according to M. L. Judd, general sales manager of Remington's Air Conditioning Div.

Remington will manufacture the units for Canadian use in its Auburn, N. Y., plant. The new arrangement will not affect deliveries to stateside firms, Judd said.

The new firm, wholly Canadian owned, has main offices and showrooms in Toronto, with branches in Winnipeg, Montreal, Vancouver and St. Johns. Merchandise is being warehoused at all branches for immediate delivery to dealers.

Officers of the company are Peter V. Brown, president, and Clifford Yonson, secretary-treasurer. A. E. Brown is general sales manager. All are from Toronto.

Many retail outlets have already been established including such key accounts as Ogilvy's, J. Becker Inc., Hercy Electric Co., and Air Conditioning Co. (Canada).

## SEES 200,000 HEAT PUMP SALES BY '60

Year-round push button weather control in an all-electric home is rapidly approaching the reach of the average American pocket-book, according to Clarence H. Linder, General Electric Co. vice president of engineering.

Speaking at the fortieth semi-annual meeting of the American Society of Refrigerating Engineers at Lake Placid, N. Y., the G-E official predicted that 200,000 heat pumps will be sold annually by 1960 at an installed price of less than \$2,000.

This compares with today's installed price of about \$3,500 to \$4,500 in a few thousand luxury homes throughout the nation.

Tracing the rapid growth of air-conditioning, the G-E vice president said it has the potential of becoming one of the fastest growing industries in the country during the next quarter of a century. He said sales of room air-conditioners alone, reported at less than a half million units last year, would approximate 2,000,000 units annually by 1960.

## AIRTEMP DEALER OPENS NEW PLANT

C. Robert Ingram, Chrysler Airtemp dealer in Oklahoma, has opened a new \$150,000 plant in downtown Oklahoma City. One-third of the 15,000 sq. ft. plant includes general business offices and a large showroom. The remaining two-thirds of the plant is divided into metal working, service and repair shops. General offices and sales room are cooled by twin Airtemp 8-hp packaged air conditioners.

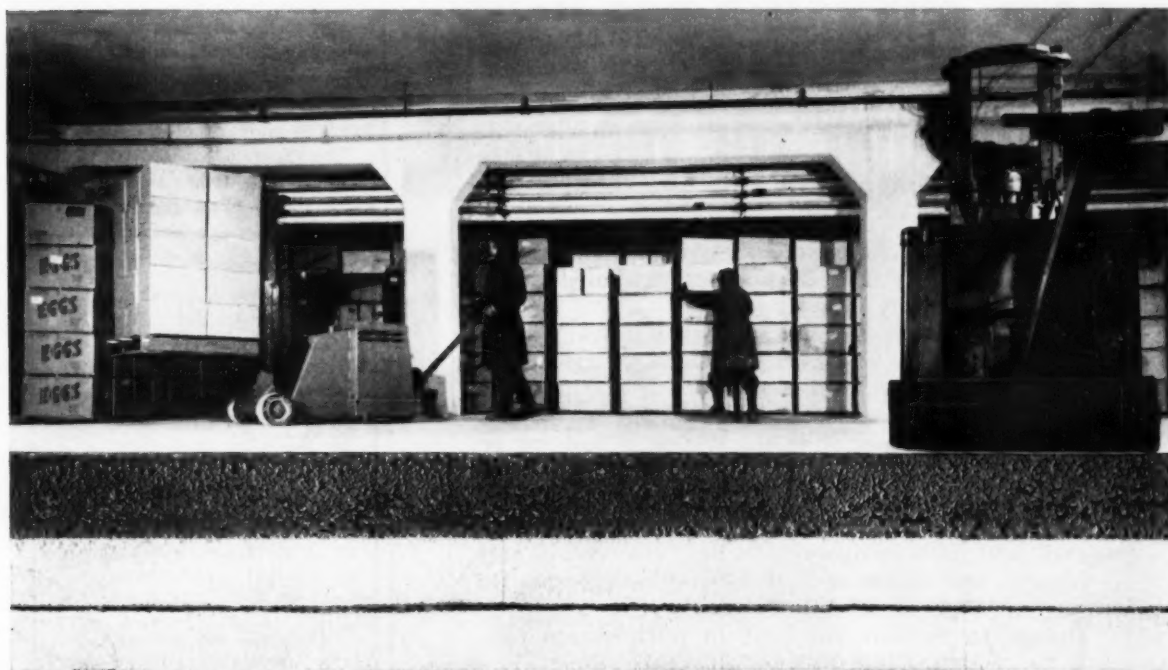
Attending the grand opening ceremonies from Airtemp were C. E. Buchholzer, president, J. F. Knoff, vice president and general sales manager, R. J. Schumann, vice president in charge of manufacturing, T. M. Simpson, treasurer, and C. R. Neeson, consulting engineer.



Dow

# FEATHERLIGHT STYROFOAM HAS HIGH STRUCTURAL STRENGTH!

Offers an average compressive strength of 20 lbs. per sq. inch  
Easily supports concrete floors . . . plus normal floor loadings



The Dow Chemical Company  
Plastics Department PL 1489, Midland, Michigan

Please send me your booklet containing information  
on Styrofoam, the most nearly perfect low-temperature  
insulation material.

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

Because of its compressive strength, Styrofoam® is ideal for the insulation of concrete, wood or metal deck floors of low-temperature storage facilities. Styrofoam is supplied in rigid board form having stable properties and will not change shape or sag. It is simple to lay and easily worked by hand or power woodworking tools.

The ease of fabrication and installation is a real plus, but Styrofoam's high resistance to water vapor and its low thermal conductivity are insulating characteristics of paramount importance. Lightweight Styrofoam (Dow polystyrene expanded approximately 40 times) has a non-interconnecting cellular structure that resists the passage of water and water vapor. The same cellular construction of "dead air cells" retards the transfer of heat. Styrofoam is odorless, and it resists mold, rot and vermin.

Whatever your low temperature insulation problem may be, investigate Styrofoam. Laboratory tests and field performance have shown it to be the most nearly perfect low temperature material yet developed. It delivers effective insulation at an extremely low cost per year of service life. Write for the interesting data booklet on Styrofoam today. THE DOW CHEMICAL COMPANY, Plastics Department, Midland, Michigan.

*you can depend on* **DOW PLASTICS**

DOW

## SPECIALIZE . . .

*Continued from page 35*

dry refrigeration would do a better job for them. In this case a refrigeration salesman without a thorough knowledge of the beer business would have been whistling a tune into a deaf ear.

Just as the brothers specialize in one market, they also specialize in selling two non-competitive boxes. For those whose need is for a

smaller box there is the General Electric line, and where they leave off in size there is the Zero Plate.

Knowing the customer's business determines the box to recommend. A tavern might sell so many cases of beer daily, but that can mean nothing. If the establishment has a steady patronage throughout the day, one box will suffice, but if his business comes in staggered intervals his peaks, not the daily quota, will determine the size of box needed.

This is the line of thinking that

impresses the prospect. In the customer's eyes there is a difference between useful information and useless information. And a lot of refrigeration facts and figures are looked upon as useless by the prospect, the Pappas brothers believe.

The opinion of the general public is that there is plenty of easy money connected with selling beer at retail level. Those acquainted with the facts know this is a false impression. It is a small profit, quick turnover operation, with volume being the operator's only salvation.

Convincing the operator of the advantages of switching to dry refrigeration is one thing; showing him how he can pay for it is a horse of another color.

The operator using ice has a daily ice bill. It is a small amount, as he thinks of it, and as he deals

# DOES CHANGING THE VALVE REALLY CURE THE TROUBLE?

As you know, changing an expansion valve may remedy a lot of trouble in a refrigeration system. But does it really cure it?

The fellows at the factory will tell you that a large percentage of returned valves are OK. This indicates that *most troubles occurring at the valve may be caused by the stuff passing through it.* It's possible that a poor oil in the system is sludging or "waxing" and clogging the valve, or that excessive moisture is freezing out in it. By changing a valve, you often remedy the trouble, the system starts up and you get refrigeration. But the *cause* still remains and sooner or later the trouble returns. Be sure that poor oil is not causing the trouble—change to Suniso—the best in refrigeration oils.

## Sold by Leading Wholesalers Everywhere

**SUNISO ADVANTAGES** • provides adequate lubrication at all temperatures encountered in service • possesses a high degree of stability • won't throw out wax deposits under low-temperature conditions • has extremely low moisture content • resists formation of corrosive acids and carbon under service conditions • separates readily from refrigerant—won't react adversely

**SUNISO**  
REFRIGERATION OIL  
A PRODUCT OF SUN OIL COMPANY



"About that refrigerating unit you installed . . . there's a drip in it already . . . my husband."

in small amounts his spending is geared likewise. Talking lump sums doesn't hit a responsive chord.

"The meter plan could have been originated for this type customer exclusively and justified its invention," declares Pete. "We have some 900 meters in operation."

"In closing the sale, however, we never tell the prospect he will be dropping a dollar in the meter every day until the box is paid out. Four quarters a day seems far less significant than a dollar to him. Every detail must be broke down to its lowest denominator in order to make a favorable impression.

"As a rule, tavern and cafe owners are an unstable lot. They don't stay put for long. The turnover is terrific. A man with a box

that isn't paid out, and with intentions of selling his business, can, if he is buying on installments, stall a payment or two. If his payments are, say, \$40 a month, he can beg off by paying \$20. But when he has to feed the meter every day, he has no choice but to keep his payments currently up to date.

"We have three men out collecting from meters," Pet concludes. "They also keep us informed regarding the customer's attitude toward the box and its use. In the last analysis if your customers don't recommend you and your product, you will not be in business for long. Keeping them happy after they have bought is still a big part of the selling job!"

## KITCHEN VENTILATING

*Continued from page 41*

to charts of the type shown in Figures 1, 2 and 6, Chapter 31, of the 1952 edition of the Ventilating Air Conditioning Guide.

Choosing a value to represent the resistance created by natural winds blowing on the exhaust duct opening is a matter of judgment. A figure of .5" of water has been successfully used in designing many systems.

The total resistance against which the blower must move the desired quantity of air is then determined by totaling the resistance values obtained as described in the preceding paragraphs. A typical set of figures is shown in the following table:

Resistance of filters.....	0.2" water
Entrance loss at connection of exhaust duct to hood .....	0.1" water
Resistance caused by wind pressure on exhaust opening .....	0.5" water
Resistance of exhaust ducting .....	.27" water

Total .....1.07" water

Use static head of 1" of water

When selecting an exhaust blower from a typical fan catalogue it will be noted that generally the size designation of the fan, the fan inlet and outlet sizes, and other pertinent data are specified on each chart. The column at the far left of each chart generally lists a series of capacities which the fan will deliver. As the chart is read to the

right, values will be found which show the velocity with which air is discharged from the blower outlet and the rpm and horsepower requirements of the fan when delivering the specified cfm against several different static pressures.

A quiet running fan of about the correct size will result if a fan is selected which delivers the required volume of air at a fan outlet velocity of about 2000 fpm. The proper size fan can thus be determined by looking through the fan catalogue until a performance

chart is found in which the desired cfm is delivered with a fan discharge velocity of about 2000 fpm.

## WESTINGHOUSE COMPLETES HEAT PUMP FIELD TRIALS

Assuming the role of a potential user, Westinghouse Electric Corp. has just completed field tests on three air to air heat pumps installed in private homes.

The experience and results gained in the residential heat pump test

# ROTARY SEAL

## Replacement Units

Easy to Install .....

Efficient in Operation .....

Simple in Construction .....

Economical .....



UNIT NO. 4215

For Commercial,  
Semi-Commercial,  
Air Conditioning and  
Household Refrigerator  
Compressors .. over 23  
years of performance proof ..

AT ALL  
LEADING  
JOBBER'S

THE mechanical seals for  
**ROTARY SEAL COMPANY**  
rotating shafts

UNITS  
FOR ALL  
STANDARD  
MAKES

"Seal with  
**Certainty!"**

**2020 NORTH LARRABEE STREET  
CHICAGO 14, ILLINOIS, U. S. A.**  
CANADIAN AGENT: 2025 ADDINGTON AVENUE, MONTREAL 28, QUEBEC, CANADA

were quite promising, according to a paper presented by G. L. Biehn, design engineer in the Sturtevant Div., before the American Power Conference in Chicago.

The new heat pumps just tested are designed to supply either cooled or heated air to every room throughout the year. By assuming the position of a home owner, Westinghouse believed it could quickly and simply find the answer to important questions all consumers ask about products: namely, how much does it cost to operate and maintain?

Three different climatic areas in the United States were chosen for installation of the test units. The southeast was represented by a five-room bungalow in Miami, Fla.; the southwest, by a five-room ranch type home in Fort Worth, Tex.; and the northern fringe area, by an eight-room ranch style house in Lynchburg, Va.

The air-to-air heat pumps are regulated by a single three-stage room thermostat. There is a five degree differential between the heating and cooling stage, and a two

degree differential between normal heating and the booster heat stage. For example, a thermostat set at 74 F would control the heating stage at this temperature. Booster heat would come on at 72 F and cooling at 79 F. A switch mounted on the thermostat permits manual control of the air circulating fan.

At the Lynchburg residence, the cost of operation of the heat pump for the first year averaged \$33.10 per month at the 1½ cents per kilowatt hour rate for this region.

Further south in Miami, the heat pump operation costs averaged \$10.50 per month. This figure is based on the local 1½ cents per kilowatt hour rate. Cooling is the prime requisite in Miami; thus the cost is accepted as a rather nominal addition. It was the heating that made the impression on the home



## HERE'S WHY ALL REMCO PRODUCTS SELL FASTER—SAVE YOU MONEY

**E-Z-SEE LIQUID-FLO-INDICATORS** with the exclusive sensitive flap, responsive to changes in flow. E-Z to SEE thru, these indicators now permit the serviceman to analyze accurately functions of the expansion valve by action or position of the flap. Positively leakproof—perfectly safe.

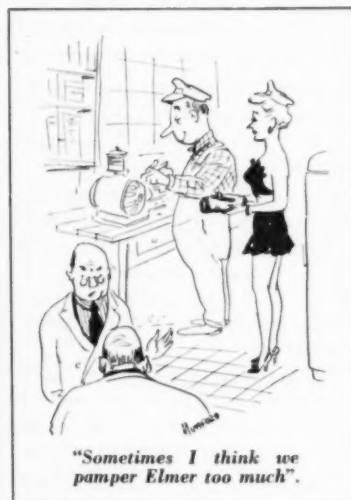
**SUPER-FLO FILTER-DRIERS** for both original equipment and replacement. Check SUPER-FLO's amazing low price against ordinary driers which do not have massive fibreglass depth filters, molded drying elements and spun-copper shells. Perfectly free flow. Remco also manufactures famous Cross-Flo and Standard Duty driers.

**FROST-TITE FLARE NUTS** positively eliminate creeping, cracking or splitting of nuts in refrigeration systems by providing relief for expanding ice through patented forged frost-relief slots. Yet they cost no more than unrelieved flare nuts.



Available to the trade through wholesalers everywhere.

Circle No. 39 on Reader Service Card



owners here, however, since the usual type of heating used in this area is not too comfortable.

Although a full season has not quite been completed at the Fort Worth installation, present data indicate that the operational cost will be less than \$40 per month. The rate including demand charges and fuel adjustment is somewhat over two cents per kilowatt hour.

As expected, a few minor adjustments were required when these units were installed and first operated. There have been no failures of any major part of the units and none of the hermetic systems have been opened since they were put into operation.

Each of the three families in whose homes the heat pumps were



installed found the system to be more than satisfactory in every respect. They were especially fond of the heating due to the lack of drafts or dryness generally present in other types of hot air heat.

Biehn concluded his talk by stating that the test program has provided results that have been of real value in developing the residential heat pump. He stated that the air to air heat pump is now being offered commercially by Westinghouse with initial production scheduled for late summer.

#### 41-YEAR-OLD SKYSCRAPER GETS AIR CONDITIONING

Complete modernization of the 41-year-old skyscraper at 80 Maiden Lane, a well-known address in New York's financial district, has been announced by its owner, American Eagle Fire Insurance Co. American Eagle is one of the companies of the America Fore Insurance Group, which comprises, in addition, Continental Insurance Co., Fidelity-Phenix Fire Insurance Co., Niagara Fire Insurance Co. and The Fidelity and Casualty Co. of New York.

The H-shaped building, containing approximately 350,000 sq. ft. of usable floor space and occupied by American Fore, is the largest building in New York ever to be fully air conditioned as an overall project after its construction.

The modernization program, including the installation of the Carrier Conduit Weathermaster system to provide complete air conditioning, will be accomplished during working hours without disrupting normal operations. It is expected to be completed by the latter part of 1954.

American Eagle said that it was influenced to undertake the modernization program by a number of factors. The announcement stated:

"We feel that the efficiency and productivity of the staff will be increased, and there should be no enforced shutdowns in hot weather. Air conditioning also should reduce house cleaning costs.

"Modernization with air conditioning and engineered lighting will also provide better space utilization."

The entire building will be air conditioned, including three cafeterias and a recreation area for em-

ployees. The major portion will be equipped with a Carrier Conduit Weathermaster System, comprising over 1,600 "under the window" outlet units which permit individual room or area temperature control. Certain interior portions of the building will be air conditioned by an overhead duct system. The total refrigeration capacity of the systems is 1,350 tons.

Refrigeration will be supplied by two Carrier turbine-driven centrifugal refrigeration machines with the necessary steam being provided by

the New York Steam Co. Space for the refrigeration machines will be obtained by the removal of existing heating boilers.

#### N.Y. DISTRIBUTOR OPENS SHOWROOM

The first showroom in the New York metropolitan area designed to exhibit residential, commercial and industrial air conditioning equipment to both dealers and public was opened recently by Air Equipment Distributors, Inc., at 624 Second Ave. The company handles Servel.



**Yes, Sir, too many repeat calls can put you out of business, too!!**

Use "Supco\* 88" for preventive maintenance and cut call backs on all installations by as much as 88%.

Tested by the New York Testing Laboratory... "Supco\* 88" was shown to cut down friction by 46.7%! And don't forget it's usually friction that causes breakdowns and means call backs. But that's not all... There are other things you should know about "Supco\* 88"—results have shown high standards in B.T.U. efficiency and good performance in current consumption—even on brand new

units—Also its highly penetrating film prevents the formation of carbon sludge deposits on bearing surfaces and will increase the film strength and, oh yes, "Supco\* 88" will also remove any deposits of carbon and sludge if they have already formed, thereby eliminating the necessity of complete overhauls.

There are ten more things about "Supco\* 88" that means efficiency and darn few call backs... If any. Try it and be convinced.

Write for more information about this remarkable oil additive.



**SEALED UNIT PARTS CO., INC.**

261 East 161st Street

New York 51, N. Y.

Circle No. 40 on Reader Service Card

# COMMERCIAL *Refrigerator* SALES NEWS

## Blessing Heralds Big Boom in Soda Fountain Business

**F**AR from being "on its way out", as recently predicted in some quarters, the soda fountain industry is currently entering upon a period of great expansion. That's the considered opinion of L. G. Blessing, president of Bastian-Blessing Co., a leading manufacturer of fountain-luncheonette equipment for the past forty years.

To prove his point, Blessing quotes figures furnished by C. J. Palmer, executive secretary of the Soda Fountain Manufacturers Association, which reveal that total fountain sales in the industry showed an increase of 56% for the first four months of this year, as compared with sales in the corresponding period of 1952. In April alone, these figures indicate, sales were 65% above the April record last year.

The recent withdrawal of Liquid Carbonic Corp. from the fountain industry prompted a wave of publicity in the national press forecasting the "impending demise" of the soda fountain as a great American institution. Nothing, Blessing asserts, could be further from the truth.

Soda fountain operation has undergone evolution, like many other businesses, Blessing points out. Out of the fountain's popularity emerged the fountain-luncheonette, which attracts more customers and gives the operator a larger profit. It also has opened many new outlets for fountain manufacturers, as restaurateurs and other food purveyors have recognized it as the quickest and most economical method for serving fresh foods.

While no longer confined to drug

stores, aggressive merchants in the drug trade definitely find their fountain-luncheonettes their most potent means of attracting customers, and they operate them on a profitable basis, says Blessing. He cites statistics to show that today a larger volume of business is done at drug store soda fountains than at any previous time.

Commenting on the fact that some druggists have discarded their fountains, Blessing points out that usually the fountains discarded were obsolete and had lost their power to attract trade. Furthermore, the stores with new equipment incorporating many new labor-saving devices were able to get and keep the available help.

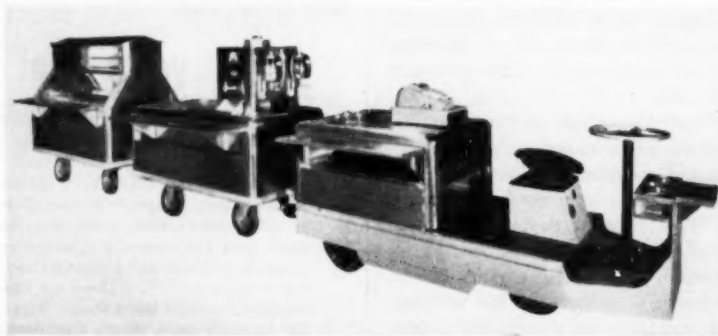
It is estimated that 68,000,000

meals are eaten away from home every day in this country and that 25% of them are eaten at fountain-luncheonettes. In Blessing's opinion that percentage will increase as more fountain-luncheonette service is made available. He points out that today there are more outlets for such equipment than ever before, mentioning particularly the hundreds of drive-ins, motels and trading centers that are springing up all over the country.

"The demand for the types of fountain-luncheonette equipment we make is steadily increasing," declares Blessing. "To take care of this expanding business we have added some new distributors this year, and a number of our distributing organizations have increased their sales staffs. We now are operating two shifts in some departments and are expanding our manufacturing facilities.

"As we see it, there is plenty of soda fountain business available," Blessing adds, "but to get it a manufacturer must have engineering and designing ability to develop equipment that meets the changing needs of fountain operators, and the manufacturing know-how and facilities to produce it at prices operators can afford to pay. He also needs a sales organization capable of helping fountain operators choose the units that they can operate most profitably in their individual establishments."

### "FOOD TRAIN" HELPS SOLVE IN-PLANT FEEDING



**MOBILE FOOD TRAIN** designed for in-plant feeding of industrial workers has been developed by Rehco Corp., Los Angeles. It consists of a cold-food car and a hot-food car, electrically operated, and a tow truck to haul them through the plant. The cold-food car (second from left) is refrigerated by a  $\frac{1}{2}$  hp Servel Supermetec condensing unit with hold-over plate coils. The condensing unit may be plugged into any standard electric outlet when the train is standing still. Electric strip heaters are used on the hot-food car. Refrigerating and heating equipment may be operated separately or as a unit. Each train will serve about 300 persons.

## NCRSA MEMBERSHIP GROWS

Five new distributor members and one new associate member have been added to the roster of National Commercial Refrigerator Sales Association, the organization's headquarters reports.

Four of the new distributor members are from Ohio: Hepfinger Bros., Cincinnati; York Dayton Refrigeration, Inc., Dayton; Davison Associates, Toledo; and Whitesell's Refrigeration, Hamilton. El Paso Hotel Supply Co. of El Paso, Tex., also has joined the ranks.

The new associate member is Friedrich Refrigerators, Inc., San Antonio, Tex.



## FRIGID IGLOO NAMES NEW REPRESENTATIVES

Appointment of four representatives for Frigid Igloo equipment was announced recently by S. James Krakow, vice president of the Yonkers, N. Y., firm. New representatives include: A. S. Walker, San Antonio, Tex., as southwestern representative; Pat Ritz, Buffalo, as representative in Pennsylvania, excluding Philadelphia; Alfred T. Schechter, Miami, as southern representative for the company's hotel division; and Kelnard Sales & Services, Inc., Long Island City, N. Y., as representative in Queens, Nassau and Suffolk Counties.

## L-O-F DISTRIBUTOR ON W. COAST NAMED

Reliable Steel & Builders Supply Co. has been named distributor of superfine fiber glass insulation in Los Angeles by Libbey-Owens-Ford Glass Co.

Headed by S. W. Block, presi-

dent, and Martin N. Graham, vice president, the company has offices at 730 E. 62nd St. The company will cover Southern California and parts of southern Nevada.

## REWA PLANS PROGRAM FOR ALL-INDUSTRY SHOW

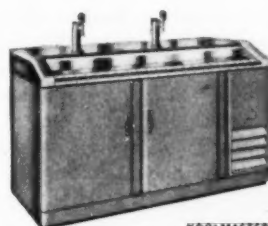
Plans for the annual meeting of the Refrigeration Equipment Wholesalers Association during the 8th All-Industry Refrigeration and Air Conditioning Exposition to be held in Cleveland next November were laid by REWA's board of directors

when they met recently at the Fort Hayes Hotel in Columbus, Ohio.

REWA will headquarter at Hotel Cleveland. Plans for the association's program include business sessions, conference sessions, work shops, and nationally known speakers.

## QUIET KOOL NAMES SERVICING AGENCIES

Two authorized service stations to handle servicing for the entire line of Quiet Kool room air condi-



**KOOLMASTER**  
Direct Draw Beer Dispensers



**DRY KOOL**  
Bottle Coolers

**REMEMBER**  
you are buying for  
**TOMORROW**



**KUBEMASTER**  
Ice Cube Maker



**UNDER COUNTER DRY BOTTLE COOLERS**

Over a decade ago we gave them names . . . **KOOLMASTER — DRY KOOL — KUBEMASTER** . . . and they went on to set standards for the trade. Those early units are still giving economical, dependable service to people all over the country.

Today our beverage line of **DIRECT DRAWS, BOTTLE COOLERS and ICE CUBE MAKERS** still leads the field. Smoother, slicker and as modern as tomorrow, they are worthy successors to those **UNITED** pioneers. Select **UNITED** and you always know why.



For complete information  
phone, wire or  
write today

Locust & Walnut Streets  
**HUDSON, WISCONSIN**  
**EXPORT SALES DIVISION**  
Scheel International, Inc.  
4237 N. Lincoln Avenue, Chicago, U. S. A.

Circle No. 41 on Reader Service Card

tioners, were appointed recently by Eugene M. Peters, vice president of the Quiet Kool Div. of the Quiet Heat Mfg. Co.

The Tipton Heat Pump and Valve Corp. of 220 N. E. 59th St., Miami, Fla., has been named to handle servicing for all Quiet Kool air conditioners in the state of Florida. The Centex Air Conditioning and Heating Co., of 3940 No. Central Expressway, Dallas, Tex., has been named to handle all servicing within a 500 mile radius of Dallas.

### WESTINGHOUSE OPENS TWO BRANCH OFFICES

Branch application engineering offices have been opened in Buffalo and Cincinnati by the Air Conditioning Div., Westinghouse Electric Corp. T. J. Feeley, formerly apparatus engineer at the firm's Philadelphia air conditioning office, has been appointed manager of the Buffalo office serving northwestern New York and northern Pennsylvania. J. M. Little has been named manager of the Cincinnati office serving southern Ohio, central and western Kentucky and southern Indiana. He was

previously assistant to W. B. Cott, division sales manager at Hyde Park, Boston.

**A** SURVEY by the du Pont organization shows that the average food store shopper spends about 8 seconds to select choices of approximately 37 different brands of food-stuffs from each department in a self-service market. This fact sharply points up the importance of display, packaging, value, and special offers.

### MOTOR PRICES INCREASED

Century Electric Co. has announced that, effective May 15, prices on all fractional horsepower motors were increased approximately 3%. This price revision was accomplished by revisions of discounts without changes in printed prices, the announcement said.

### SERVEL NAMES TEXAS DISTRIBUTOR

Todd-Ford, Ltd. has been formed to be a distributor for Servel Inc.'s air conditioning division in the San Antonio, Tex., area. The sales area of the company extends from

Austin in the north to Laredo in the south, and from Del Rio in the west to Yoakum in the east.

The company was formed by John W. Todd and John G. Ford. Ford is managing engineer. A. L. Helmly and C. J. Troilo are associate engineers. F. M. Evans is service manager and Katherine Snell is office manager. Offices are located at 1200 N. Colorado St., San Antonio.

### YORK MAN ELECTED VICE PRES. OF AMA

J. Kieth Loudon, vice president and assistant to the president of York Corp., was elected vice president of the manufacturing division of the American Management Association for 1953-1954 at the recent annual business meeting of AMA.

### MITCHELL NAMES N.Y. REPAIR DEPOT

Technical Refrigeration Specialists, a subsidiary of Sealed Units Parts Co., Inc., has been appointed as a repair depot in New York City for Mitchell Mfg. Co.



**They're ALL hot prospects  
for the "SWEDEN METHOD"**  
**Cash in NOW...sell the profit line**

**SWEDEN SPEED FREEZERS**

**Talk Profits**...and your customers will sit up and take notice! We know, because we're talking "down-to-the-penny" margins in a nationwide promotion on the "SWEDEN METHOD" of automatic fountain operation. This profit story has excited fountain operators throughout the nation. It's a story of 50% reduced food cost... of 50% reduced labor costs. It means faster service, greater production per day, less employee fatigue—plus 50% increased gross profits. Cash in on this active operator interest... starting now! Sell the complete, amazing profit potential of automatic fountain operation. Your operator-customers know the full story from Sweden's nationwide advertising to the trade. They are interested... they want profits... get out and show them how to make more money... with SWEDEN SPEED FREEZERS!



**THE SWEDEN LINE  
HAS EVERYTHING!**

**VARIETY**—Models for every fountain requirement... in volume, in budget, in type of operation.

**DESIGN**—modern, sparkling beauty that stands out in any installation.

**ENGINEERING**—resulting from 20 years of leadership. Trouble-free use for your customers... and service-free sales for you.

For information on how you can cash in on the "Sweden Method" write today to:

**SWEDEN FREEZER MANUFACTURING CO.**  
DEPT. R-5 SEATTLE 99, WASHINGTON



## "TIMED" FOR SALES



CUSTOMERS WELCOME promotional touches by a commercial refrigeration dealer when they are tied in with a useful "gimmick" like this electric clock. In fact, Frank Stella, head of F. D. Stella Products Co., Detroit, reports that many of his customers insist upon having one of these attractive clock signs thrown into the deal before they'll sign the order.

## TENNEY HAS STANDARD AIR CONDITIONING COILS

Tenney Engineering, Inc., Newark, N.J., announces that it now can supply standard air-conditioning coils for quick delivery. These 4-row finned coils, recently added to the Tenney line, are designed for use with domestic and commercial comfort-cooling systems and equipment.

Tenney AC4 coils, for installation in refrigeration systems using directly-expanded Freon 12 or Freon 22, are made in sizes to match all normal air-conditioning loads, and fit all duct dimensions.

The coils come in 2, 3, 5, 7½ and 10-ton (nominal) models with recommended capacities of 750, 1125, 1875, 2800 and 3750 cfm of air respectively. The five models include 11 sizes, ranging from 1.51 to 7.50 sq ft of face area.

To insure counter flow circuiting and minimum surfaces for superheating, the Tenney AC4 coils come in four styles with direction of air flow: horizontal left and right, and vertical up and down.

Made of 5/8-in. copper tube, these coils are furnished with sweat-con-

nection distributors. Any externally equalized thermostatic expansion valve of proper rating may be used with these distributors. Tenney will put in distributor and valve combinations to suit any preference.

Coils are selected to balance out at from 36 F to 43 F suction temperature at the recommended air flow rate using normal high-temperature water-cooled or combination air-water cooled condensing units Air may all be recirculated, or up to 20% fresh air may be used, with 80% recirculated.

## AIR PRODUCTS, INC. EXPANDS FACILITIES

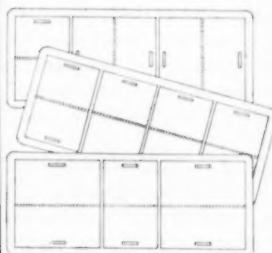
A \$200,000 expansion and shop rearrangement program for increased production efficiency is being completed in the Emmaus and Allentown, Pa. plants of Air Products, Inc. The company manufactures oxygen-nitrogen generators and equipment employing extremely low temperatures used in the steel, glass, chemical and petroleum industries. Offices and engineering departments in both plants are being air conditioned.

# Service from any angle



*Beverage-Air*  
**CAFETERIA  
Bottle Coolers**

Model CA 63-S with optional glass filler type water faucet (enameled finish cabinet).



By simply changing the lids, cabinet will provide service from sides or ends, or can be used under-the-counter.

More flexibility in service! Greater capacity than any other comparable cooler! Same, proven Beverage-Air cooling arrangement!

That's the story of Beverage-Air's latest addition... Cafeteria Bottle Coolers—available in two models with capacities up to 600—6 oz. pop bottles or 570 pints of milk, these coolers are available in either all stainless steel tops, sides and ends or in stainless steel tops, enameled-finish sides and ends. Additional cap-catcher and glass filler type water faucet optional at extra cost.

Efficient suction-type fan cooling arrangement and serving convenience make this a "must" for speeding cafeteria service in schools, restaurants, etc.

Write today for complete information on Beverage-Air Equipment and Direct Mail Literature for mailing to your customers.

**THE PUNXSUTAWNEY COMPANY**  
Punxsutawney, Pa.

Circle No. 43 on Reader Service Card

## Ray Kromer is Selected to Direct Expanded RACCA Activities Program

In a move to expand the scope and activities of the Refrigeration and Air Conditioning Contractors Association, to meet the increasing needs of the organization, directors and officers of RACCA at their meeting in Minneapolis June 15 and 16 obtained the services of Ray Kromer as executive vice president.

According to George T. Howe, president of RACCA, the appointment of Kromer will make it possible for the association to get un-



Ray Kromer

derway with a comprehensive program that is essential "in guiding the future contractor activities in our fast growing industry".

"The future unhampered growth of our industry," Howe said, "is primarily the growth of the contractors, and under Kromer's direction RACCA will provide the patterns, policies, and assistance to guide its members in conducting their businesses in the best interests of the public, the industry, and themselves."

Speaking of the new RACCA executive vice president, Howe said:

"Ray Kromer is well known to most contractors. He has a background and qualifications unequalled for this position.

"He was a successful refrigeration and air conditioning contractor in Cleveland from 1933 until 1946. He built his business from scratch, starting in the depression, and was recognized as an outstanding contractor.

"During World War II, Kromer

banded together the Cleveland contractors who were instrumental in assisting the Refrigeration War Council to obtain a deferment of refrigeration servicemen for a six-month period. As chairman of the Refrigeration Service Training Council, he was in charge of the development and administration of a national training program for refrigeration servicemen.

"He was charged with the job of providing the industry with manpower, so that the shortage would not exist when the six-month deferments expired. His ingenuity, organizational ability, perseverance and determination resulted in a program that not only added hundreds of men to the ranks of servicemen, but also banded together local contractors throughout the nation.

"At the insistence of these local groups, Ray Kromer again responded by banding these local associations into a national group which is the present Refrigeration and Air Conditioning Contractors Association. As the first chairman of this national association, he was accorded a lifetime fully paid membership, and continued serving as a committee chairman.

"The officers and directors of RACCA are very happy they were able to obtain the services of Ray Kromer as executive vice president. We are looking forward with confidence to the years ahead with the knowledge that with Ray directing our program RACCA is in a better position to recently at the Itasca Country Club.

### 200 ATTEND CHICAGO RACCA GOLF OUTING

Two hundred men from the refrigeration and air conditioning industry attended the sixth annual golf outing and dinner of the Refrigeration & Air Conditioning Contractors Association of Chicago recently at the Itasca Country Club, near Chicago.

Winner of the golfing trophy was Frank Haas of Haskris Co., Chicago. This award, presented to the RACCA member having the lowest net score under the Peoria system

of scoring, is a permanent one presented by the Chicago Refrigeration Equipment Wholesalers Association.

Other special prizes went to Gene Miller, Roy Stroh, E. Rogacki, W. Tebeau, J. Smerz and Bob Ross. Humorous award for high gross score was given to Ed Mitchell.

#### "CHARLIE" HARRIS JR. TAKES OVER NEW JOB WITH DAD'S FIRM

Charles W. J. Harris has been named sales engineer for Harris Refrigeration Co., the Cambridge, Mass., refrigeration engineering and contracting firm headed by his father, Charles C. E. Harris. Besides his sales engineering work, he will supervise development of the line of low-temperature cabinets which the company produces.



The younger Harris, who graduated from Massachusetts Institute of Technology in 1950, joined the firm a year ago, following his discharge from the Marine Corps. He succeeds Charles Martin, Jr., who has left the Harris organization to represent the Fred W. Smith Co. in western Massachusetts and Connecticut.

Philip W. Hunt, who joined the Harris firm in 1941 and became service manager a year ago, remains in that position.

#### AIRTEMP UNIT IN 1953 "HOME OF IDEAS"

Ideal indoor climate the year-around is skillfully achieved in House and Garden magazine's 1953 "Home of Ideas", now open in Bryn Mawr, Pa.

A Chrysler Airtemp 5-hp "packaged" residential air conditioner and an Airtemp oil-fired, forced warm-air furnace comprise the year-around unit. An electrostatic filter purifies all of the air passing through the system before it is distributed in the home.

A water-cooling tower is located behind the home. Under normal conditions, about 90% of the water

## Servicemen Agree...

### BEACH-RUSS PORTABLE VACUUM PUMPS *are made with features they desire*

High Performance Characteristics

Completely Portable

Automatic Lubrication

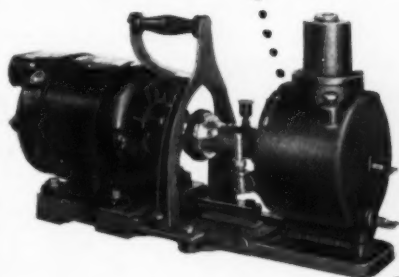
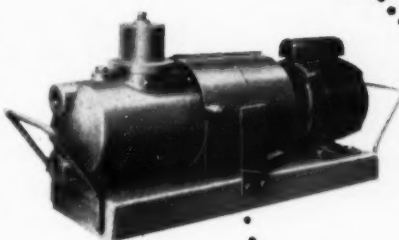
Single- or Two-Stage

Long Life

Quiet Operation

Minimum Attention

Valves Eliminated



Beach-Russ Vacuum Pumps are also made in types and sizes for evacuation and testing of refrigeration equipment on a production basis.

#### BEACH-RUSS COMPANY 56 CHURCH ST., NEW YORK 7, N. Y.

Send descriptive literature covering

☐ Model O Single-Stage Vacuum Pumps.

☐ Model A Two-Stage Pumps.

Name .....

Company .....

Address .....

City ..... Zone No. .... State .....

#### BEACH-RUSS COMPANY

56 CHURCH STREET

NEW YORK 7, N. Y.

Circle No. 44 on Reader Service Card

CONTRACTOR NEWS

used to cool the refrigerant is re-used.

An interlocking thermostat controls both air conditioning and heating operations. Under normal conditions, indoor temperature remains at a chosen setting in the 72 to 78-degree range.

#### TEMPRITE EASTERN MGR. NOW IN N. Y.

James W. Archibald, eastern division sales manager of Temprite Products Corp. has established headquarters at 750 Kappock St., New York 63, New York. He had formerly been located in Collingswood, N. J.

Archibald is responsible for Temprite sales in the entire eastern seaboard area from Maine to Florida.

#### TRANE DULUTH SALES OFFICE MOVED

The Duluth sales office of Trane Co. has been re-located at 414 Lyceum Bldg., Duluth 2, Minn. Robert T. Dean is manager of the office.

## New Refrigeration Safety Code is Introduced in N. Y. City Council

**MAJORITY** Leader Joseph T. Sharkey recently introduced in the City Council two bills which, when enacted into law, will give New York City "a new, modern, complete" mechanical refrigeration safety code and provisions for that code's administration under the jurisdiction of the City's Fire Department.

"This legislation," Sharkey stated, "is the result of more than 2½ years of intensive research and study by a group of experts under the auspices of Commerce and Industry Association of New York which historically has interested itself in a program of building and safety code modernization. Throughout its work the study panel had the benefit of the presence of a representative of the Fire Depart-

ment at all its meetings and also the views of the Association's 53-member Advisory Review Committee consisting of consumer, union, technical, manufacturer and installer groups and organizations. Before final drafts were made all provisions were discussed in extensive conferences with Third Deputy Fire Commissioner Albert S. Pacetta, Chief Arthur J. Massett and members of their staffs, all of whom I understand are in hearty agreement with the purposes of the safety code and its provisions."

Administrative and enforcement requirements are covered in one bill; the other bill provides safety requirements.

Safety measures incorporated in the proposed law are substantially those of the B-9 1950 code, with



### FOOD SERVICE REFRIGERATORS?

Certainly . . . **FEDERAL** modern refrigeration includes: **FOOD SERVICE REFRIGERATORS, STORAGE FREEZERS . . .** for Hotels, Institutions, Restaurants, Hospitals, Commissaries, Bars, Packaged Goods Stores, etc.

Write for colorful folder, Catalog 101, describing the new Federal refrigerators for Restaurants, Hotels, Institutions, Commissaries, etc. the complete line for every refrigeration need.

**Federal Refrigerator Mfg. Co.**  
Waukesha, Wis. Dept. E



Circle No. 45 on Reader Service Card

## NOW . . . SAVE TIME—SAVE MONEY



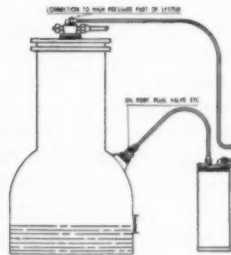
with the new "Pressure-speed" oiler in adding oil to all type refrigeration units.

- **No Dirt!**
- **No Mess!**
- **No Waste!**

**ESPECIALLY GOOD  
FOR SEALED UNITS.**

#### Simple to Use—

Just fill with oil and let the High-side Pressure or a Refrigerant Cylinder Pressure force in the correct charge. Holds one quart. In many cases it is not even necessary to interrupt the operation of the system.



Write direct or see your local wholesaler.

**REFRIGERATION DEVICES CO.**  
P. O. BOX 108-A NUTLEY, N. J.

Circle No. 46 on Reader Service Card



some changes, it was reported. If adopted, the new measure would replace the code New York City has been using since 1927, which went into effect several years before the advent of Freon refrigerants.

Under the proposed administrative bill, licensed operators would be required only on systems containing more than 50 lbs. of group 2 refrigerant. Present requirements call for a licensed operator on any system containing more than 50 lbs. of refrigerant, regardless of the type.

The new bill also would liberalize the annual permit requirements. At present annual fees are collected on all refrigeration systems located in other than residence portions of buildings. With the new bill, annual permits would be limited to self-contained systems of over 15 hp and field erected systems of over 3 hp, thus eliminating annual permits on small equipment.

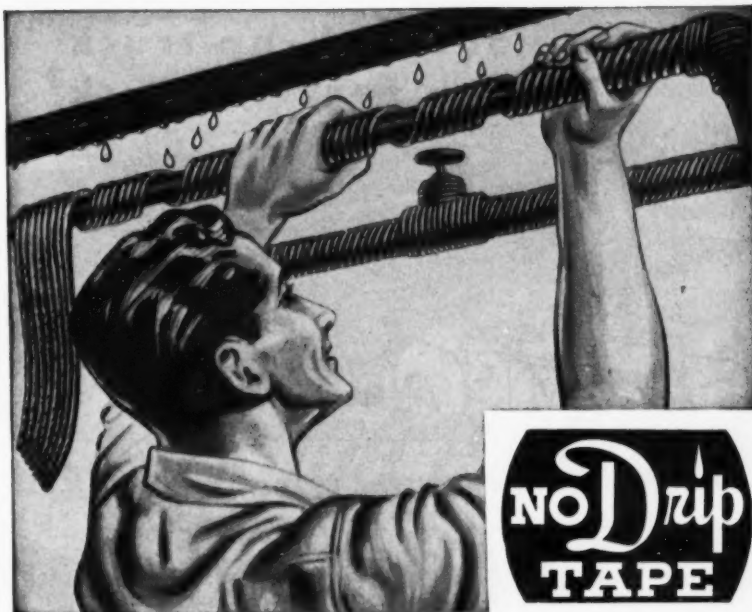
#### Sets Permit Arrangement

The bill also would establish for the first time an installation permit arrangement applying to self-contained units over 5 hp containing group 1 refrigerants and field-erected systems containing group 1 refrigerants of 1/2 hp or more. Permits also would be required for systems of 1/2 hp and more using group 2 refrigerants.

According to the experts' committee, the bills offer tremendous advantages to the refrigeration industry and its employees and to users of cooling equipment of all kinds ranging from the small office water cooler and window air conditioning unit up to the largest central refrigeration of air conditioning systems.

To the consumer, it was stated, the safety code means assurance of proper and safe installation at lower cost while the administrative measure spells greatly reduced operating expense and elimination of yearly fees where from a purely safety standpoint an inspection would serve no useful purpose. To the installer the bills mean lower installation costs, and to him, to the manufacturer, to the distributor, and to labor employed by all four of them, the legislation means increased sales and more jobs.

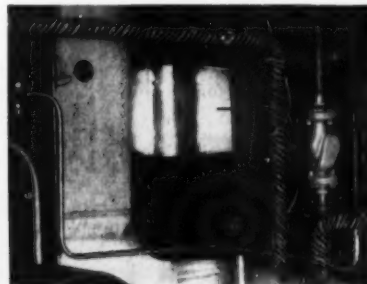
The panel whose work is re-



## STOPS CONDENSATION DRIP

Yes, indeed, it takes care of the vexatious drip problem connected with cold water pipe installations. NoDrip Tape is pliable, cork-filled, 2" wide. When wound around pipes, it forms a tight fitting, moisture-proof jacket. Holds temperatures steadier, eliminates icing and frosting, prevents rusting, keeps pipes and floors dry.

Just the thing for pipes and suction lines running from refrigerating machines to condensers.



Use on refrigerant lines in air conditioning systems, walk-in freezers, deep freezers and on basement cold water pipes.

#### EASY TO APPLY

You don't need tools, brads or experience to apply NoDrip Tape. Just wrap it around pipes and press into place with your hands. Anybody can do it. Try a roll on a short section of pipe and compare with uncovered portion.

#### EFFECTIVE IMMEDIATELY

Follow the easy application directions on the package and you'll be surprised at results. You'll not be bothered with drip any more.

#### ORDER THROUGH YOUR SUPPLY HOUSE

Write for Interesting Circular

**J. W. MORTELL CO.**

Technical Coatings since 1895

533 Burch St.,

Kankakee, Ill.

**CONTRACTORS** — Include NoDrip Tape protection in your estimates to stop drip, preserve pipes and fittings and also for good appearance. NoDrip is brown in color, but can be painted any color with cold water paint.

Roll covers about 10 ft. of 1/2" i.d. iron pipe or 13 ft. of 1/2" o.d. copper tubing.

**\$1.69**

Higher west of Rockies & Canada

#### MANUFACTURERS and SERVICE ENGINEERS

NoDrip Tape has been used for years on production lines of leading refrigeration equipment manufacturers. Investigate its many advantages.

**CONTRACTOR NEWS**

## Make your pick-up truck a service truck



PAINTED...READY TO INSTALL

# SERVICE-TWINS

## TOOL AND MATERIAL COMPARTMENTS

It's easy to install Service-Twins. You need only a wrench and drill to do the job. No painting is required. Service-Twins are finished in baked-on synthetic enamel, that's rust and chip-resistant. Color is medium-dark green.

Built-in parts bins are standard equipment. Doors have slam-action catches with cylinder locks, keyed alike. Overhead rack with material brackets, shown at right, is optional.

Service-Twins are available in 74" and 84" lengths, for  $\frac{1}{2}$  and  $\frac{3}{4}$  ton pick-up trucks.



**SERVICE-TWINS** are manufactured by  
the makers of the famous *Service-Master*

**Service-Master** . . . the all purpose service body designed to take a complete workshop to the job . . . the pace-setter in the service industry. In sizes for  $\frac{1}{2}$ ,  $\frac{3}{4}$ , 1, and  $1\frac{1}{2}$  ton chassis.



Weatherproof doors are fitted with recessed, slam-action catches, and cylinder locks, keyed alike. Complete with built-in shelves and bins. Optionals include removable overhead rack, pipe rack, vise support, telescopic roof, and rear bumper-step.

### McCABE-POWERS AUTO BODY COMPANY

5900 NO. BROADWAY • ST. LOUIS 15, MO.

Please send me complete details on Service-Twins ☐ Service-Master ☐

Name \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ Zone \_\_\_\_\_ State \_\_\_\_\_

CR

flected in the 44 pages of the proposed local laws is composed of R. L. Williams, E. I. Du Pont de Nemours & Co. (acting chairman); Lester E. Kelley, Tiffany & Co.; J. H. Crawford, Westinghouse Electric Corp.; Albert A. Giannini, Carrier Corp.; A. I. McFarlan, A. I. McFarlan Co. (representing American Society of Refrigerating Engineers); Myron D. Miller, Refrigeration Industry Safety Advisory Committee; Walter Russell, Frigidaire Sales Corp.; James H. White, Refrigeration parts Co., Inc.; Harold J. Ryan, Harold J. Ryan, Inc. (representing Heating, Piping and Air Conditioning Contractors' Association); and George F. Sklenarik, chemical engineer, New York City Fire Department (ex-officio). Arnold Witte, Manager of Commerce and Industry Association's Legislative Service Division, acted as secretary to the panel.

### ESTIMATE 372,000 ROOM UNIT SALES IN 4 MOS.

Industry-wide shipments of 1953 room air conditioners through April 30 were estimated at 372,000 units by H. L. Laube, president of Remington Air Conditioning Div. This compares with the estimated industry total of 341,000 units shipped in all of 1952.

Laube made his estimate in reporting that dollar sales of Remington equipment for the six months ended April 30 were more than double those for the same period last year. Unit shipments for the first six months of the fiscal year were 20% higher than for all of last year, he said, and the firm has received firm orders for all the units it can ship for the rest of the season.

### THREE FIRMS TO HANDLE FARR LINES

Air Filter Sales & Service Co., Jackson, Miss. and Air Filter Sales & Service Co., Nashville, Tenn. have been appointed Farr representatives in their respective territories to handle Farr-Air products.

Marshall, Neil & Pauley, Inc., Texas and Louisiana representatives for Farr, have organized a subsidiary company in New Orleans, Air Filter Co., to handle air filter sales and service in the New Orleans area.



**Dealers! Servicemen!**

**Step up sales and profits with genuine**

# **FRIGIDAIRE**

## *Quickube Ice Trays*

**Sizes to fit most every refrigerator —  
regardless of make, model or age!**

Every refrigerator owner is a prospect for Quickube Trays—one or a complete set. They'll sell fast at bargain prices. And, watch trade-ins move faster, too, when you add Quickube Trays for a "dress up" touch. Your customers know about Quickube Trays—the only ice tray with "built-in" tray and cube release—the original, most widely advertised, best automatic ice cube tray on the market. Lay in a good stock of all types and sizes

now—during the peak selling season. Remember, they're warranted for satisfaction and quality by the maker—Frigidaire. See your Frigidaire Parts Distributor at once—there's one near you!

*Quickube Trays, like all genuine Frigidaire parts, are warranted to give lasting, satisfying service.*

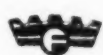
*Always specify—always use—genuine precision-built Frigidaire Parts, Accessories.*

### **Only trays with "Double-Easy" Action**

- Fingertip tray release
- Cubes release trigger-quick—two or a trayful
- Sturdy aluminum trays and grids
- Colorful ice blue and gold models

**Now —**

**5 popular sizes  
11 different models  
to choose from!**



**Quickube Trays are made only by FRIGIDAIRE!**

Circle No. 49 on Reader Service Card

**and AIR CONDITIONING • AUGUST, 1953**





## LIQUID EYE<sup>®</sup> on the Refrigerant Line means:

- Perfect refrigerant visibility
- Straight-through flow
- No turbulence
- Leak-proof
- Shock-proof
- Vibration-proof
- High safety factor
- Spring-loaded gaskets

Sold by Leading Wholesalers. Send for Catalog B-52 covering the complete Allin line.



### LARKIN HALF-TURRET HUMI-TEMP

Efficient operation makes a product easier to sell on one hand; builds solid customer satisfaction on the other. Precision engineering, only the best materials, skilled craftsmanship, and over 25 years experience in commercial and industrial refrigeration add up to higher efficiency for every Larkin product. And this means lower operating costs—important to buyer and seller alike.

Manufacturers of the original Cross-Fin Coil • Humi-Temp Units • Frost-O-Trol Hot Gas Defroster • Evaporative Condensers • Cooling Towers • Air Conditioning Units and Coils • Direct Expansion Water Coolers • Heat Exchangers • Disseminator Pans.

WATCHDOG OF THE NATION'S FOOD SUPPLY

**LARKIN COILS**

319 MEMORIAL DR., S.E. • ATLANTA, GA.

## HEAT PUMP PROVIDES CONDITIONING FOR OHIO DINER



**AIR CONDITIONED DINER** in which the heating and cooling is provided by a General Electric 5 hp heat pump is the new "Bill's Diner" opened recently in North Canton, Ohio. The G-E air-to-air unit is located in a small, out-of-the-way service corner of the diner. Short duct runs bring the cool or warm air into the diner proper. The installation was made by Refrigeration Distributing Co., G-E distributor in Canton, on the same day the diner was put up. Bill Wurtz, owner of the diner, believes his is the first all-electric diner in the United States. Switchover of the heat pump between heating and cooling is completely automatic from season to season and within the same day if the need arises. G-E reports that of its current heat pump installations about 35% are in commercial establishments.

## HEATING CABLE, NOT RICHARD, OPENS THIS DOOR



**GENERAL ELECTRIC'S HEATING** cable has literally "opened the door" for the General Ice Cream Corp., at its Albany, N. Y. plant. The lead-sheathed cable was installed around the framing of the foot-thick metal doors which separate the ordinary-room-temperature (68F) processing rooms from the sub-zero (-30F) hardening chamber. By preventing the formation of ice on the door gasket due to condensation, the installation has eliminated door sticking and made it easier for the ice cream company's employees to enter and leave the low-temperature room. Formerly, employees had to spend considerable time in the sub-zero chamber trying to budge the "tightly-frozen" door.



## MITCHELL APPOINTS 10 DISTRIBUTORS

New franchises to handle the 1953 line of Mitchell window type room air conditioners have been awarded to 10 distributors. The new distributors include: Illinois South Electric Supply Co., Inc., East St. Louis, Ill.; Home Appliance Distributors of Ark., Little Rock; Joyce Appliances, Inc., Indianapolis; Graybar Electric Co., Inc., Pittsburgh; Pittsburgh Electric Supply Co., Pittsburgh; Alliance Distributors, Inc., Wichita; Hendryx-Southern, Inc., Jacksonville; Industrial Electric Machine Co., Independence, Kan.; Baird Hardware Co., Inc., Gainesville, Fla.; Automatic Heating Distributors, Inc., Colorado Springs.

### SIGN OF THE SALE



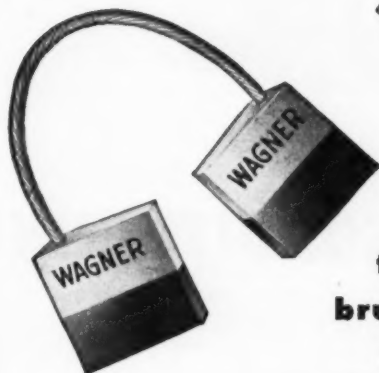
**TYING-IN** the firm's name with air conditioning is always good business. Manufacturers who provide small name plates for insertion in doors of business's installing their equipment found that out long ago. The J. B. McCarty Co. of Springfield, Missouri, goes them one better with an attractive blue and white sign which is designed as a screen door protector, identification of an air conditioned business and an advertisement for this Ozark air conditioning firm. The sign, shown here on a small restaurant screen door, is made of ordinary plywood and nailed to the door.

### COURTHOUSE COOLED

Air conditioning of Courthouse Annexes No. 1 and 2 at Bartow, Fla., was awarded by the Polk County Commission recently to Tampa Armature Works, Inc. The Tampa firm quoted a price of \$17,240 for air conditioning Annex No. 1 and \$7887 for Annex No. 2, or a price of \$24,877 on both installations. The combination offer was accepted.

# Genuine Joe says:

every good repair  
job deserves good  
replacement parts...



**BE SURE**  
that replacement  
brushes are the same  
grade of carbon  
as the original brushes!

There is a difference in motor brushes. Replacement brushes must be the correct grade of carbon, as well as the correct size, in order to assure "like new" motor performance.

Brushes used in Wagner Motors are the finest obtainable, carefully selected for the particular motor in which they are used. Be sure to replace them with *identical*, genuine Wagner brushes. They're easy to identify because the name WAGNER is stamped on every brush.



## WRITE FOR:

Wagner's Motor Parts Catalog MU-40  
and for Fast-Moving Parts Bulletin MU-122.  
Every motor repair shop needs these helps.



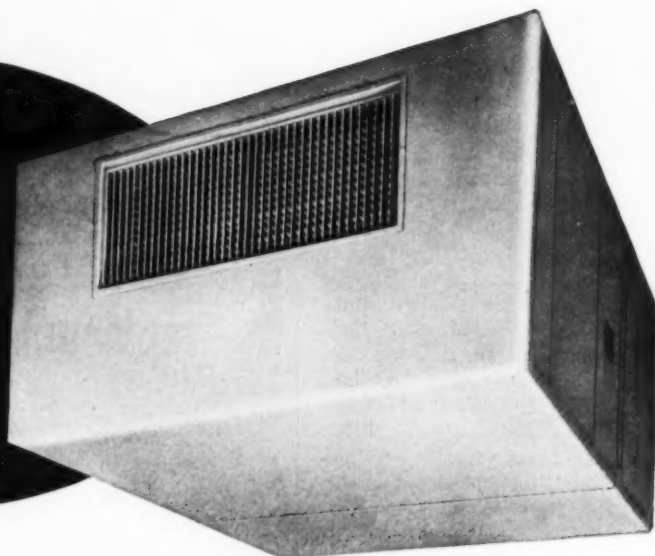
M553-4

**WAGNER ELECTRIC CORPORATION**  
6442 Plymouth Ave., St. Louis 14, Mo., U. S. A.

MOTORS - BEARINGS - STANDARD MOTORS  
BRUSHES - CAPACITORS - COMMUTATORS

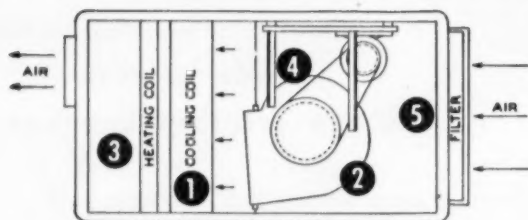
**OVER 750 AUTHORIZED SERVICE STATIONS  
OR PARTS DISTRIBUTORS**

# NEW FEATURES of PROVEN MERIT



**KRAMER**

## AIR CONDITIONING UNITS



1

### MUGGY-AIR-CONTROL

It "squeezes" extra moisture from the air on muggy days without reheating, dampers or excessive cooling. No short cycling and uncomfortable conditions.

2

### "BLOW-THROUGH" DESIGN

Fan-motor assembly always exposed to normal room temperatures. A unique design with many advantages, resulting in —  
No motor overload and no loss of bearing lubricant from hot air of the heating coils.  
No corrosion of fan-scroll assembly from moisture carry-over of the cooling coils.

3

### ANTI-SWEAT CONSTRUCTION

Only a small portion of the casing is exposed to cooled air; that section is heavily insulated.

Access doors and grille have scientific anti-sweat designs.

4

### QUIET OPERATION

The fans and motor form an integrated assembly independently rubber-mounted to the casing. All moving parts are completely isolated by rubber.

5

### FOR FINISHED INTERIORS

Graceful lines with no unsightly belts, motor and guards exposed to view. Finished in hammer gray enamel.

**MANY OTHER OUTSTANDING FEATURES.**

WRITE FOR BULLETIN AC-238

**KRAMER TRENTON CO. • Trenton 5, N.J.**

## SEES MORE INDUSTRIAL AIR CONDITIONING USE

More and more industries and commercial operators in Bergen County are introducing air conditioning into their plants, according to Frank Hudik, president of the Comfortair Co., Hackensack, N. J. Hudik, who has completed contracts for such work in the Bendix plant at Teterboro, Wright Aeronautical Corp., Faber Ball Point Pen Co. and the Air Reduction Co., believes that the demand for air conditioning in industry this year will far outweigh the demands for the installations in individual homes.

He attributes this condition to the fact that industries have discovered that production schedules can be maintained better when air conditioning is used. The efficiency of workers slumps badly after tem-

**P**UBLICATION of a 1953 Edition of "Equipment Standards for Room Air Conditioners" has been announced by the Air Conditioning and Refrigerating Machinery Association.

Standard 110, Room Air Conditioners, has been completely revised in order to keep pace with the latest developments in the rapidly-growing room air conditioner industry. It is the fourth edition of this ACRMA standard.

The new publication, which also includes the ACRMA recommended Cooling Load Estimate Form for Room Air Conditioners, is available from ACRMA, 346 Connecticut Ave., N. W. Washington 6, D.C., at 25c a copy.

peratures in the mid-seventies have been reached, scientific studies show, and the industrial plants and commercial operators are installing air conditioning to remove this cause of lowered production.

Many plants will find that the air conditioning installations will pay for themselves by thus maintaining a normal production schedule despite the intensity of the heat outside the plant. Too, the improved worker morale and the fewer absences from workers are other possible benefits.

Hudik points out that other advantages of air conditioning are offered to industrial and commercial users. The dissipation of toxic and semi-toxic fumes and the regulation of temperature and humidity controls where machines of fine tolerance are operated are often of prime consideration.

## STOP GUESSING

USE

DO YOU KNOW  
WHAT SIZE  
CAPILLARY TUBE  
TO USE?

### TO REPLACE

- High Side Float
- Low Side Float
- Expansion Valve
- Restrictor Tube
- Original Capillary Tube

### TO CONVERT

- SO<sup>2</sup> Systems To Methyl Chloride
- SO<sup>2</sup> Systems To F-12
- Methyl Chloride To F-12

### FOR SEALED & OPEN UNITS

- Refrigerators 1/20 to 1/5 HP Inclusive
- Water Coolers 1/4 HP and Less
- Freezer Cabinets 1/3 HP and Less

### FOR USE WITH FOLLOWING REFRIGERANTS

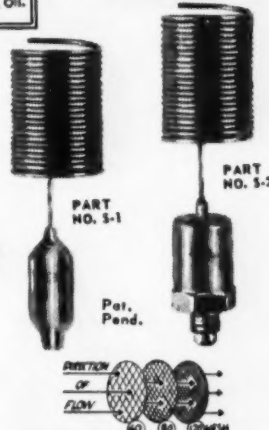
SO<sup>2</sup>, Methyl Chloride, F-12, F-21, F-22, F-114, Carrene and Methyl Formate.

### MONEY BACK GUARANTEE

Write For A Copy of "The Capillary Tube Story", Facts Every Service Engineer Should Know About Strain-O-Kap.



- No Cutting
- No Adjusting
- No Altering



Strain-O-Kap the Most Versatile Metering Device with the Exclusive Triple Straining Action

Available at Your Jobber

Wagner Tool & Supply Corp.

REFRIGERATION PARTS AND TOOLS

40-08 22nd ST., L. I. City, N. Y.

## For a Faster Sweating Job

Clean  
Fittings  
with  
**SCHAEFER**  
Brushes

(Look for this trademark)

**SCHAEFER BRUSHES**  
— MILWAUKEE —

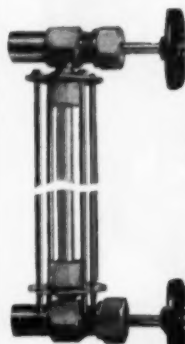
Made of Stainless Steel Wire, secured in 4-ply wire handle with wood grip. Strong, stiff, wear-resisting, corrosion-proof. 12 Sizes, from 1/4" to 2 1/2" O.D. and 1/4" to 2" I.D. Order a complete set from your Refrigeration Equipment Wholesaler.

**SCHAEFER BRUSH MFG. CO.**  
117 W. Walker St., Milwaukee 4, Wis.

Circle No. 54 on Reader Service Card

## shank AMMONIA VALVES

### AND REFRIGERATION PRODUCTS



**ALL-STEEL GAUGE SETS**  
All-Steel Construction. Automatic shutoff of liquid in case of glass breakage. Composition packing rings give long life, no-leak seal.

#### RELIEF VALVES

For Ammonia and Freon. One piece body design—rustproof finish. Internal construction—stainless steel—will not corrode. Positive relief action. Pressures from 75 to 400 lbs.

See your jobber — or write us for prices.



**CYRUS SHANK COMPANY**

631 W. Jackson Blvd., Chicago 6, Ill.

## Buy Peerless FOR PERFORMANCE

### DRIP-PUMP for Condensate on Air Conditioners



The Peerless Drip-Pump solves the troublesome drainage problem—on air conditioners, coolers, refrigerators and other machines where condensate is present—by eliminating hazardous gravity drains altogether! The Drip-Pump lifts condensate up and out, overhead . . . saves valuable space.

Illustration shows Model DP-2 high capacity high lift pump for air conditioner applications. Also available is Model DP-1 packless centrifugal type pump, driven by "flea-power" motor . . . the ideal pump for use for dome, unit or flash coolers. Both models are ruggedly built for long, hard service; easily and quickly installed. Write for full information.

**Peerless of America, Inc.**

1501 No. Magnolia, Avenue  
Chicago 22, Illinois, U.S.A.

Circle No. 53 on Reader Service Card

66

## 1953 INDUSTRY VOLUME MAY REACH \$2 BILLION

Total 1953 retail sales of the air conditioning industry may well approach the \$2 billion mark, Cloud Wampler, president of Carrier Corp., said in an address to the Cleveland Society of Security Analysts.

He pointed out that this would mark an increase of more than 50% over the estimated retail volume of \$1¼ billion for the industry in 1952. Last year, in turn, showed a gain of 25% over the \$1 billion retail sales figure for the year 1951.

Wampler explained that the figures presented include all types of air conditioning equipment—for plants, office buildings, hotels, apartment houses, stores and homes, as well as room air conditioners—plus the cost of installation.

"The greatest growth potential in the field is the year-round air conditioning of residences, with systems for industrial plants being a close second in importance," Wampler said.

"Entirely too much emphasis is today being placed on room air conditioners as making up the bulk of the industry's potential. I am sure that year-round units for homes will rapidly overtake room air conditioners in dollar volume. And the broad base of the business—so-called big installations—is continuing to expand at a highly satisfactory rate.

"Over the years I do not expect room air conditioners to account for more than 10 to 20% of the industry's total volume. On the other hand, year-round air conditioning for homes should, within the next 10 years, become the greatest single part of the business, amounting to about 35% of total sales.

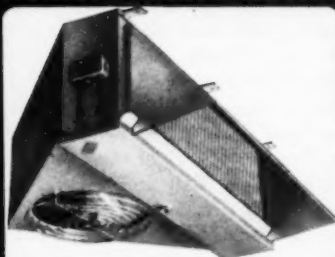
## RCA VICTOR HOLDING ROOM COOLER CLINICS

Installation and maintenance methods of room air conditioners are being covered in a series of service clinics for RCA Victor dealers. The first was held May 4 in Philadelphia.

A team of technical experts headed by H. W. Timmerman from the RCA Service Co., in cooperation with the company's distributors, is conducting the meetings.

Circle No. 58 on Reader Service Card

## "DEFROSTAIR" HEAT TRAP COIL



### Automatically Defrosts Itself

Rising warm air is confined under hood of refrigeration coil housing within fin and tube area. Coil defrosts completely without warm air escaping into refrigerated zone.

No re-evaporation. No special plumbing. Easy to install. Low cost. Field tested since 1944. All patents granted. Defrostairs coil is designed for all low temperature applications and fresh meat rooms below 34° F.

Write for information

**A. H. WITT COMPANY**  
940 Sycamore Ave., Los Angeles 38, Cal.  
Representatives in principal cities

**WITT Coils** Over 30 years reliable service

## Plastic EXTRUSIONS

Specialists in Custom Extrusions  
Send Prints for Quotation

- DOOR GASKETS
- DUCT SEALS
- WEATHERSTRIP
- FLEXIBLE TUBING
- GLAZING CHANNELS



Jarene "B" Vinyl Plastic is an exclusive Jarrow compound. It is long lasting, weather resistant, compresses easily and is flexible to almost any degree from soft to semi-hard. Offered in a wide choice of colors.



Our plant is geared for small runs as well as large. All new, modern equipment is operated by skilled plastic craftsmen with many years experience.

Over 25 Years Of Service  
To The Refrigeration Industry.

**JARROW PRODUCTS**  
420 N. LA SALLE ST. CHICAGO 10, ILLINOIS

Circle No. 57 on Reader Service Card  
**AUGUST, 1953 • COMMERCIAL REFRIGERATION**



## LETTERS

### Business Building Issue Helpful To Dealers

EDITOR:

We sincerely thank you for going to the trouble of securing one copy of the November, 1950 issue for us, even though your regular supply of this issue was exhausted.

You may perhaps be interested to know that I have carried a copy of that issue around with me for a number of years and have found it most valuable in talking to dealers.

Not only was the article by Mr. Lindahl valuable but the entire issue has been of extreme help to me as well as to dealers who were concerned about correct business methods. It is amazing how many dealers still operate without any particular knowledge on business methods and yet they do seem to get by.

GLENDON W. STEPHENS  
Western Divisional Mgr.  
The Warren Co., Inc.  
Los Angeles, Calif.

### For Your Information

EDITOR:

Can you tell me who makes Congress belts?

HAROLD SMITH  
Cincinnati, Ohio

Congress belts are manufactured by Congress Drives Div., Tann Corp., 3750 E. Outer Drive, Detroit, Mich.

\* \* \*

EDITOR:

In your December 1952 issue of Commercial Refrigeration & Air Conditioning was an article, "The Heating Side of Air Conditioning" by Wm. Henry Knowlton. In the first paragraph it suggested that any air conditioning contractor interested in using warm air for heating basementless buildings obtain a copy of "Warm Air Perimeter Heating—Manual No. 4", published by the National Warm Air Heating and Air Conditioning Association, together with the series of "work sheets" used for the calculation and design of several types of perimeter systems. As no further address was given I have taken the liberty to write to you and ask if you would please forward this letter to the Association



**PENGUIN PUSHER** is the unusual new sales aid developed to promote the new Penguin 88 Display Cabinet. The desk-top easel consists of 6 flip-over pages. Each page focuses attention on major advantages of the Penguin 88.

## UNIQUE NEW PROMOTION PACKAGE GIVES DEALERS NEEDED SUPPORT

**D**EALERS, distributors and salesmen in the display cabinet field are giving eager welcome to a unique new promotion package developed by Penguin Sales to launch the new Penguin 88 Display Cabinet. Highlight of the package plan is the "Penguin Pusher"—newly created and developed to help sales representatives cash in on the full sales potential of the Penguin 88.

The over-all package is a carefully integrated plan to develop maximum impact. Tying in with the Penguin Pusher is a special mailing to stimulate prospect interest. The program is spearheaded by a scientifically developed advertising campaign in selected trade magazines. This campaign is directly aimed at building inquiries in dealer territories.

Catalog page reprints and a clever little sticker seal, for use on letterheads, envelopes and mailings, plus unique mailer round out the unusual promotion package Penguin offers dealers.

All promotion materials are supplied at cost or below. Since supplies are limited, prompt action is necessary. For complete information, including franchises, write C. Young, Penguin Sales, 17172 Redford Road, Detroit 19, Michigan.

**"PENGUIN PUSHER" Plus  
Other Sales Aids are  
Outstanding in Display  
Cabinet Field.**



The Penguin Pusher folds up compactly. Is easily carried under an arm. It's an effective door opener and a powerful selling aid—since it gives strong focal point for prospect interest during sales talk.

Circle No. 59 on Reader Service Card

**Your Customers'  
Best Buy. . .**

**IDEAL  
Speed-Freeze  
PRODUCTS**

**BEVERAGE COOLERS**  
unexcelled storage capacity  
(56 cases 12 oz. - 8 ft. cooler!)

**INSTANTANEOUS  
DIRECT DRAW  
DRAFT BEER COOLERS**  
(with refrigerated faucets)

**IDEAL  
COOLER CORPORATION**

2953 Easton Ave. St. Louis 8, Mo.

or notify them yourself and obtain this information for me.

**W. C. STRASBURG**  
Bottle Gas & Refrigeration Service  
Black River Falls, Wis.

The address of the National Warm Air and Air Conditioning Association is Society for Savings Bldg., 145 Public Square, Cleveland 14, Ohio. We suggest that you write directly to this organization for any of the material you desire.

#### Reader's Eagle Eye Catches Legal Error

EDITOR:

I would appreciate if you would straighten me out regarding the article "Buying By Description" in the January issue (page 10) written by Mr. Gray.

From the article I gather that the court decided the buyer had no leg to stand on, and yet the article states that the court decided in favor of the buyer.

Your reply will be appreciated.

**CARL SHUMAKER**  
Amster Kirtz Co.  
Akron, Ohio

Many thanks for calling our attention to the error contained in the

"It's the Law" columns of our January issue.

Your assumption is entirely correct. This was simply an inadvertent transposition of terminology which slipped by author, editor, and proof reader. In other words, all of us just missed the ball—and we humbly apologize.

Actually, of course, the phrase which you questioned should read: "... the Maine court, deciding in favor of the seller, said ..."

#### NAMED AD MANAGER

The appointment of Paul A. Wassmansdorf as advertising manager of the General Electric Major Appliance Div., has been announced by J. F. McBride, manager of marketing. He succeeds John G. Porter who has been named manager of the General Electric Home Bureau.

#### COMPLETES 6 JOBS

The Comfortair Co. of Hackensack, N. J., completed the installation of air conditioning and ventilation systems in the Hackensack Y.M.H.A. during February. During the same period similar work was completed in Jefferson, Washington and Foster Village schools in Bergenfield, at the Air Reduction Co. plant in Bound Brook and at a New York Port Authority warehouse in Newark.

#### MITCHELL APPOINTS NEW DISTRIBUTORS

Franchises to handle the 1953 line of Mitchell window type room air conditioners have been awarded to several major appliance dealers, it was announced by E. A. Tracey, vice president in charge of the Air Conditioning Div. of Mitchell Mfg. Co., Chicago.

Among the new distributors are: Crenshaw-Baine, Inc., 42 W. Crump Blvd., Memphis, Tenn.; Catlett-Johnson Corp., 1309 W. Main St., Richmond, Va.; Schiffer Distributing Co., 316 Ivy Street N. E., Atlanta 3, Ga.; Emerson-Long Island, Inc., 469 Jericho Turnpike, Mineola, Long Island, N. Y.; Emerson-Mid State, Inc., Newburgh, N. Y.



**EXCLUSIVE**

Each defrost cycle can be independently set for 5-60 minutes.

### Another NEW Addition to the **INTER-MATIC®** TIME SWITCH FAMILY

**Series T670: For Automatic  
Defrosting of Commercial Refrigeration**



NOW . . . 1-12 defrost cycles a day—everyday with the new Inter-Matic T670 series Time Switch . . . AND . . . variable defrosting cycles independently adjusted to settings of 5-60 minutes. Set defrost cycles for 5 minutes in the morning—10 minutes at noon—20 minutes at night . . . or any other combination . . . all with one switch.

- Easy to remove mechanism—just press spring
- Easy to set time—pull dial forward and turn
- Easy to check operation—front mounted motor
- Easy to add trippers—on the same dial
- Easy to install—large contacts, plenty of room for wiring

Write for complete details—ask for BULLETIN No. M-83

INTERNATIONAL REGISTER CO., 2624 W. Washington Blvd., Chicago 12, Ill.

**INTER-MATIC® TIME SWITCHES**

## OPPORTUNITIES

(Classified Advertising)

Rates: for "Positions Wanted, \$4.00 minimum, limit 25 words. For all other classifications, \$4.50 minimum for 25 words or under, each additional word 15¢; boldface type or all capitals, \$7.50 minimum for 25 words or under, each additional word 20¢.

### TRAINING AVAILABLE

Course on sealed unit rebuilding trade secrets disclosing exclusive methods for all operations. \$12.50 or write for details. H. Custer, Box 98, Center Line, Michigan.

### DISTRIBUTORS WANTED

Dealers-Distributors: Masterfreeze Front-Opening Milk Coolers. Complete range of sizes-streamlined. Tops in appearance and performance. Masterfreeze Food Freezers-10-16-20 cu. ft. sizes. Walk-in Coolers and Freezers—custom built—any size. All very competitively priced with attractive discounts. Write Dept. CR, Masterfreeze Corporation, Sister Bay, Wis.

### DAKOTA COAL CO. NAMED USAIR DEALER

Dakota Coal Co., of Minneapolis, has been named distributor of 1/2, 3/4 and 1-ton window type room coolers in the Twin-City area by United States Air Conditioning Corp.

Dakota, which is headed by Benjamin S. Kieffer, is located at 712 Cedar Ave. Sheldon H. Kieffer has been appointed sales manager in charge of air conditioning.

### SERVEL APPOINTS A. C. DISTRIBUTOR

The Supreme Supply Co. of Inglewood, Calif., has been appointed as a new distributor of Servel air conditioning equipment for the Southern California area. Supreme will handle Servel's "all-year" air conditioning equipment, and room air conditioners. Officers are Carl Kriwanke, president; Frank M. Kriwanke, vice president and Wesley Humphries, secretary-treasurer. Lester Rawlings is air conditioning sales manager, and Darrell Campbell is service manager.

### QUIET KOOL NAMES EASTERN DEALERS

Four new distributors to handle the Quiet Kool room air conditioner line in New York, New Jersey and Pennsylvania metropolitan areas have been named by Quiet Heat Mfg. Corp. The new distributors are: General Electric Supply Co. of New York; General Electric Supply Co. of New Jersey; General Electric Supply Co. of Philadelphia; Melchior, Armstrong & Dessau of Ridgefield, N. J.

**BUY FROM YOUR  
REFRIGERATION WHOLESALER**

## NO MORE FREEZE-UPS

*of expansion valves or capillary tubes!*

## ICE-X works like magic

**SERVICE MEN SAY: "ICE-X IS GREAT!"**



When ice forms in expansion valves or capillary tubes, ICE-X is a sure remedy . . . ICE-X is non-corrosive—harmless to parts. An ice-eliminator that can't be beat for Freon, Carrene, or Methyl Chloride systems . . . Order from your jobber. If no jobber, order direct.



Service doesn't falter  
when it comes from Harry Alter

**Jobbers: Ask for special offer!**

## The HARRY ALTER CO.

1728 S. Michigan Ave. Chicago 16, Illinois

Exclusive  
ICE-X  
Distributor

## MEASURE HUMIDITY

*simply, quickly,  
accurately  
with a*

## BENDIX-FRIEZ PSYCHROMETER



Hand Aspirated Psychrometer, Model HA/2, is ideal for taking humidity readings in confined areas.

Want an accurate means of proving the need for air conditioning? Want an easy way to check the system after installation?

A Bendix-Friez Psychrometer can give you the answer on both counts. The Hand-Aspirated Psychrometer, for example, furnishes fast and accurate humidity readings, yet requires no special skill to operate. In addition, it comes in a pocket-size plastic carrying case, making it an especially practical tool for air conditioning and heating engineers.

The complete line of Bendix-Friez Psychrometers—both hand and motor-aspirated—assures you of getting the exact type that will serve you best. Check your needs with Bendix-Friez today.



**BENDIX-FRIEZ  
PORTABLE TEMPERATURE  
AND HUMIDITY RECORDER**

Model 160

Another outstanding Bendix-Friez instrument for proving the need and checking the installation. Provides 3 x 5" charts, 10 or 30 hour records. Built to U. S. Weather Bureau standards.

**FRIEZ INSTRUMENT**  
DIVISION OF



1410 Taylor Avenue  
Baltimore 4, Maryland

EXPORT SALES: Bendix International Division  
72 Fifth Avenue, New York 11, N. Y.

Circle No. 61 on Reader Service Card

Circle No. 60 on Reader Service Card  
and **AIR CONDITIONING • AUGUST, 1953**



## A super "MARKET" for you...

You'll really bring home the bacon... when you sell and install Ranco controls in retail food stores. The chain food stores, dairies, meat markets, and fruit and vegetable stores make a super-doooper "market" for you.

Meat cases, ice cream cabinets, frozen food compartments, and dairy and vegetable coolers offer you tremendous sales possibilities. Ranco's general pressure and temperature controls were especially built

for this super commercial "market." There is a Ranco control for all commercial requirements... in fact, Ranco pressure controls are standard equipment on many refrigeration units. What a new and replacement market!

It's easy to be a super salesman in the retail food market... because Ranco sells to more original manufacturers than does any other supplier of refrigeration controls. Get your share of this big super market now!

Replace it right  
the first time  
with Ranco!



# Ranco Inc.

COLUMBUS 1, OHIO

WORLD'S LARGEST MANUFACTURER OF REFRIGERATION CONTROLS

Circle No. 62 on Reader Service Card



## THE SERVICE MAN'S DEPARTMENT

# HERE'S HOW!

### Grime Does Not Pay!

Keep your customer's equipment and his premises tidy if you want to keep the customer happy. This is one of those little extra touches that costs nothing and means so much—yet which many servicemen completely overlook.

For instance, it's always a good idea to carry a piece of canvas to each job. This can be placed on the floor beside the unit on which you are working, to keep tools from marring the floor and to eliminate any possibility of mess from the oilcan.

It's also very helpful to carry a clean rag with you at all times, for use in wiping off any finger prints that you may leave on the equipment, and to clean any excess oil or grease from the mechanism. This will emphasize to the customer that the equipment has been properly cared for.

Another good idea is to make a standard practice of oiling the motor and explaining to the user how often it should be oiled and what kind of oil should be used. Many customers don't realize, for instance, that too light an oil will let the motor bearings burn out.

### I DO IT THIS WAY

**I**NSTEAD of discarding bursted rubber charging hoses, I hang them in the shop. Then when the gasket in any quick coupler becomes worn I merely cut one from the old charging hose with a razor blade. Thus I always have a supply of such gaskets on hand, and don't have to lose valuable time trying to locate one.

John E. Gilmore  
Nashville, Tenn.



### WANT TO EARN \$5?

Then dream up some good idea for saving yourself time, money, or aggravation on a service call, and tell us all about it. Just jot it down on the nearest scratch pad, together with a sketch if you think that would help, and send it to Here's How Editor, Commercial Refrigeration and Air Conditioning. If the Editor agrees that your idea is worthwhile, he'll make your dream come true by publishing it in the magazine and promptly sending you a check for \$5. Why not start reaching for that pencil now?

### "Freon" Systems Require Care In Charging

Careful attention should be paid to the charging of "Freon" refrigeration systems. Properly charged systems will keep losses down to a minimum. The following suggestions may be helpful.

**Check for leaks:** Before charging, the liquid line from the cylinder to the unit, threaded connections or fittings, and all valve stem packings should be checked with a Halide torch. Any leaks should be repaired immediately.

**Use short lines:** When making or breaking liquid line connections between cylinder and unit, loss may vary from  $6\frac{1}{2}$  to 7 pounds (4.5 to 5%) per 145-pound cylinder. By

using short lines between cylinder and unit, loss should not exceed  $3\frac{1}{2}$  pounds (2.5%) per cylinder. A filter-dryer cartridge in the charging line minimizes moisture contamination.

**Check pressure:** The pressure within the cylinder must be greater than in the system to cause the re-

### I DO IT THIS WAY

**O**FTEN it is desirable to work on a water pump or air conditioner without draining the cooling tower. On jobs that have no hand valves, or in cases where the valves don't hold properly, I solve this problem by using a rubber ball to stop the outlet in the basin of the tower. A ball of sealing compound also can be used for this purpose. In fact, on one occasion, I even made a stopper out of a large potato.

Max Wright  
McAllen, Tex.

frigerant to flow into the system. Pressure should be checked before charging. **CAUTION** — pressure should **never** exceed 168 lbs. gage.

**Weigh before and during charging:** The service cylinder should first be weighed (with hood) to get gross weight. While the cylinder is still on the scale, connect it to the system, open valves slowly, and charge system with required amount of "Freon". Then close valves and disconnect cylinder.

### Evaporative Condensers Need Checking, Too

As with all other equipment, a periodic check of evaporative condensers is by far the best insurance for proper and continuous opera-

take a  
closer  
look  
at...

**United  
WIRE'S**



## COPPER REFRIGERATION TUBING

**UNITED** means that it's the product of 83 years of precision tube mill experience and that it's produced on new equipment, by new processes and fine quality controls unequalled anywhere within our industry... that it is better quality, has extra values... without expectation or demand and at no extra cost.

**DEOXIDIZED** means that all oxides, grease, dirt, silver, copper dust and foreign substances common to copper tubing have been 100% removed by special processing to prepare it for use, as received, in the finest and most delicately balanced mechanical equipment or control instruments.

**DEHYDRATED** means that all moisture has been removed prior to sealing and Trade Marking.

Putting them all together...

**"UNITED DEOXIDIZED DEHYDRATED"** means finer, the finest, Copper Refrigeration and Air-Conditioning Tube made anywhere. UDD will earn your respect and completely justify your confidence in regularly specifying it.

**UNITED WIRE**  
& SUPPLY CORPORATION  
PROVIDENCE, RHODE ISLAND

SALES OFFICES  
New York Chicago Akron Philadelphia  
Rochester Lansing, Mich. Los Angeles  
Minneapolis Pittsburgh Springfield, Mass.  
Hartford, Conn.

tion. When the evaporative condenser is new, it is advisable to keep a close watch on all of the points covered in the following list. Experience with the actual servicing and maintenance is the best guide as to how often it will be necessary to check the various points.

The following should be checked periodically as the need indicates:

- (1) Lubrication to the fan shaft bearings.
- (2) Shaft packing on the water pump.
- (3) Lubrication to the water pump.
- (4) Lubrication to the water pump motor.
- (5) Lubrication to the fan motor.
- (6) Spray laterals should be checked and if clogged should be cleaned.
- (7) Suction strainer on pump should be checked and cleaned if necessary.
- (8) V-belts from fan motor to fan shaft for tension and wear.
- (9) Water pan should be checked for sediment and flushed out if needed.

## DALE CO. TO HANDLE USAIR ROOM COOLERS

United States Air Conditioning Corp. has named Dale Distributing Co., Inc., 40 East 32nd Street, as distributor of room air conditioners for the metropolitan New York area. Dale will handle the sale of room conditioners in the five city boroughs, Nassau and Suffolk Counties on Long Island, and Westchester County.

## FARR EXPANDS N. J. REP'S TERRITORY

Farr Co. of Los Angeles, manufacturers of air filters and air filtration equipment, has expanded the territory served by its New Jersey representative, A-C Products Co. of Paterson, to include the metropolitan New York area, according to J. D. McCampbell, Farr sales manager. The company, which maintains a filter servicing operation in Paterson, will also handle sales and servicing of Farr equipment in the newly-assigned area. Offices are being opened in New York by the representative to facilitate operations.

**FINE**

## ICC REFRIGERANT CYLINDERS

Acclaimed by Safety Engineers!

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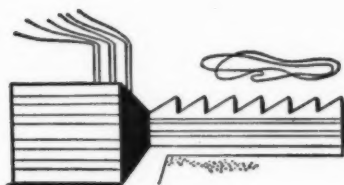
## HEATING

# AIR CONDITIONING

## *Section*



**COMMERCIAL**



**INDUSTRIAL**



**INSTITUTIONAL**



**RESIDENTIAL**

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THIS SPECIAL SECTION will be devoted to all phases of Air Conditioning — Residential, Commercial and Industrial, including both self-contained packaged units and central-station type equipment for seasonal or year-round application.

It will include information on the merchandising, selling, installation and maintenance of Air Conditioning equipment, reports on the New Products which are being introduced in this field, and announcements of Literature available from manufacturers.

We believe our readers will appreciate this new service, and the convenience of being able to locate quickly all the information on Air Conditioning in each issue in this special section of COMMERCIAL REFRIGERATION AND AIR CONDITIONING.

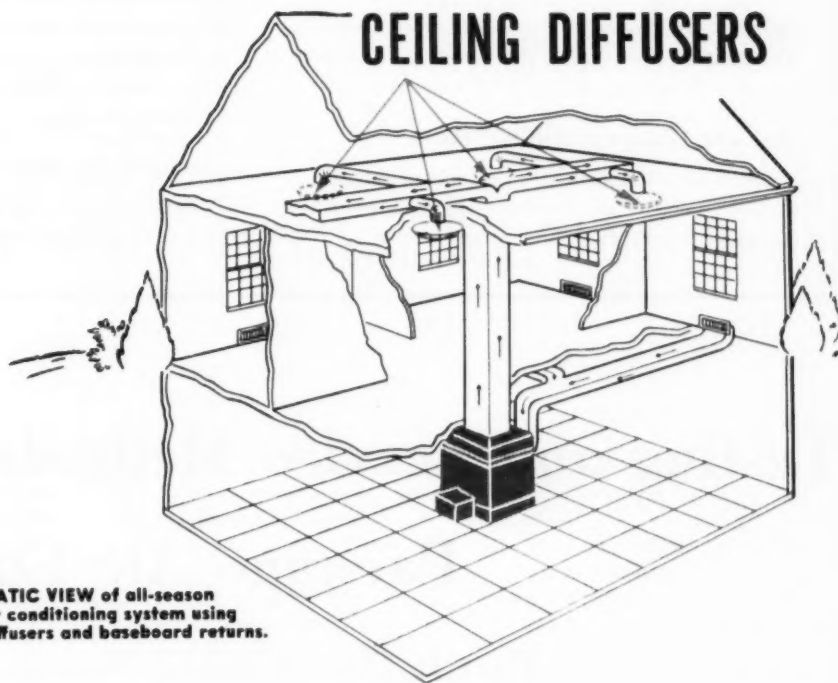


*A new approach to air circulation in the home—*

## CEILING DIFFUSERS

by John J. Albert

Hebert Thomas Co.  
Bethel, Conn.



**SCHEMATIC VIEW** of all-season residential air conditioning system using ceiling diffusers and baseboard returns.

**O**VERHEAD discharge of heated or cooled air through ceiling diffusers has long been established in industrial and commercial work. In fact, the more exacting the requirements the more likelihood of these units being used.

Until recently, however, these outlets have been found almost exclusively on the "engineered" system. With sometimes hundreds of ceiling diffusers on long duct runs, certain adjustments and controls are necessary.

Such features would be superfluous in a simple residential system. Hence the cost and, to some extent, the appearance of the commercial diffuser has made it impractical for the average home. Then, too, the principle of ceiling diffusion is perhaps not too well known among residential contractors.

With the growing interest in all year conditioning of homes, the heating system takes on an added importance. Our experience with

ceiling discharge coupled with outer wall baseboard returns has convinced us that this design has much to recommend it. In the past two years we've had uniformly good results with a simplified, low-cost diffuser made especially for residential applications.

The advantage of the ceiling diffuser is its capacity to "diffuse" or spread a relatively large volume of air evenly throughout a sizeable area. Although the incoming air leaves the diffuser at a considerable velocity, it is rapidly "braked" because it "entrains" or pulls along with it about four and a half times its own volume in room air.

Engineers call this action "secondary air induction". So rapid is this process that the mixture of room and supply air reaches room temperature within inches of the diffuser and well above the heads of the occupants.

While admittedly cool air is best delivered from the ceiling, introduc-

ing warm air the same way may appear unusual. Actually, the tendency of warm air to rise accounts in large part for the efficiency of the diffuser system because the slight downward pressure of the air leaving the diffuser and the "pull out" of the baseboard grilles has sufficient counteracting effect to maintain constant yet gentle air motion. As a result temperatures are uniform to within a degree or two throughout the entire room.

On the cooling side, air entry around a full circle likewise completes mixing near the ceiling preventing any possibility of drafts, the chief consideration in cooled air discharge.

Installation is simple. Layout differs from the typical warm air design only in the location of the ductwork, the vertical plenum or furnace "bonnet" rises through the house to the main horizontal duct in the attic. Prefabricated round

*Continued on page 104*

## How To Check Electrical Circuits

### Overload Protection Kicks Out:

Check water supply, and be sure water supply piping is adequate. Check evaporative condenser fan and pump operation. Check for correct voltage. Test starting and running capacitors. Be sure condenser coil or tubes are clean on water side.

### Magnetic Contactor Will Not Close:

Check for voltage at "L" terminals of contactor. Connect jumpers across thermostat and pressure switches temporarily. Check master switch.

### Contactors Closes, Motor Does Not Start:

Check for full voltage across any two terminals of three-phase motors. Check all fuses. Check heater coils for burn-out. Check for stuck compressor or motor (use start and test cord for single-phase motors). Check both starting and running capacitors carefully.

### Starting Relay Does Not Operate:

Check voltage. Check for stuck compressor or motor. Check capacitors. Change relay for trial.

# Testing and Service Methods for Package Air Conditioners

## Part 1: The Electrical System

**A**IR conditioning service requires the intelligent, methodical testing and repair of many makes and types of equipment, which often must be done without the use of manufacturers' service manuals. Even when these are available, they are no substitute for familiarity with the general procedures applicable to all kinds of equipment.

All air conditioners have many things in common, including tests for the usual faults. The exceptions for a particular make or type will be evident upon careful examination of the system.

Air conditioner service can be loosely divided into three categories:

1. Service to the electrical and control system.
2. Service to refrigerating equipment.
3. Service to the air distribution system.

The first of these categories is discussed in the accompanying article. Articles on service to the refrigerating equipment and to the air distribution system will appear in subsequent issues.

**T**HE electrical system includes compressor and fan motors, master control, starting switches or relays, overload protection, thermostatic and/or humidity controls, and high and low pressure switches. A complete electrical check-up may reveal abnormal operating conditions in either the refrigeration or air flow system.

The compressor motor nameplate will indicate the phase and voltage of the power supply.

Three-phase motors are self starting, require no starting relay or capacitors, are more efficient, and have more starting torque than single-phase. They are more popular than single-phase with compressors of 3-hp size and over.

The three-phase wiring system differs from the single-phase in the absence of a starting relay and the use of a magnetic motor starting switch.

The temperature and pressure

### Fuses Blow:

Check entire system for grounds by connecting continuity tester to frame and all electrical components. If ground shows, disconnect parts and test separately. A ground test should be routine whenever any electrical service is indicated.

### Be Sure Frame of Conditioner Is Grounded:

This can be through conduit system, water connections (if of metal throughout), or a grounding rod. This will reduce likelihood of shock or fire.



by Edward Dowis

controls do not have to carry the motor current, but only the current necessary to operate the magnetic switch. This is sometimes stepped down to 20 volts so that low voltage wiring may be used to room thermostats, and to reduce danger of fire and shock.

Figure 1 shows the typical method of connecting the line and controls to a three phase motor, using a step-down transformer to reduce the control circuit voltage to 20 volts.

Where line voltage is used in the the control circuit, the connections are the same except that the switch coil is for line voltage, the transformer is omitted, and the connections shown to the low voltage coil of the transformer are connected across the line where the high voltage coil is shown connected.

### Tips on Trouble-Shooting

Overload protection is usually built into the switch, and consists of heater coils in series with two of the three motor terminals. The heat from these coils operates switches connected in the control circuit.

Thus, any condition causing either phase to draw more current than the heater coils are designed for will open the overload switch and disconnect the switch coil. The switch will then fall open. It can be closed only by resetting the overload switch.

Trouble-shooting the three-phase

circuit is less complicated than the single-phase because the power and control circuits are separate.

If the motor fails to run, first test across lines A and B, B and C, and A and C with a test lamp or voltmeter. Full voltage should be indicated across either pair of lines.

If a test lamp is used, it should be of voltage at least as high as line voltage or enough lamps of equal wattage connected in series, to equal line voltage. It is important that both lamps be of equal wattage.

If line voltage is correct and switch will not close, hold it closed with a dry stick. If motor and power circuits are good, the motor will start, barring mechanical fault.

If it hums but does not start it is probably single-phasing, so check across each pair of terminals with a test lamp. A decided variation in voltage across one or more pairs indicates an open circuit, often caused by a fuse blown or heater coil burned out. A line with a blown fuse may not test dead because of feedback through motor winding.

The control circuit is a simple series circuit, including both over-current switches, master control, thermostat, pressure switches, etc. If the switch fails to close, connect

a jumper across each component in turn until the defective one is located.

The three-phase motor has no starting winding, but has three-phase windings distributed uniformly around the stator. Interchanging any of the motor leads will only affect the direction of the motor. Most sealed compressors operate in either direction.

### Testing Single-Phase

When it is desired to reverse an open compressor, it is only necessary to reverse any two leads. The motor can be tested for grounds by connecting a continuity tester to the frame and either of the terminals. The resistance across any two motor terminals should be the same. Wide variation indicates faulty windings.

Single-phase compressor motors are made in both open and sealed types. The open types are controlled by connecting the pressure switches and thermostats in series with the motor in smaller sizes. The larger sizes are controlled by a magnetic contactor exactly as illustrated in Figure 1, but using only two contactors. Only one overload heater and switch need be used.

Single-phase motors have two windings. The running winding is

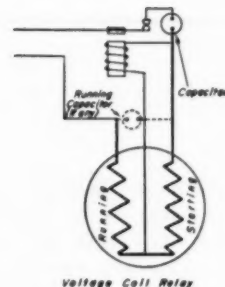
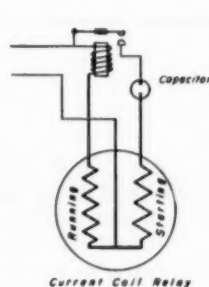
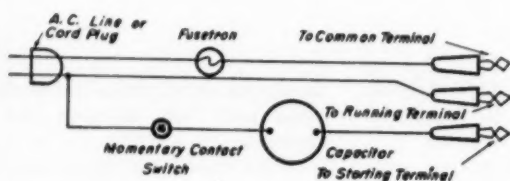
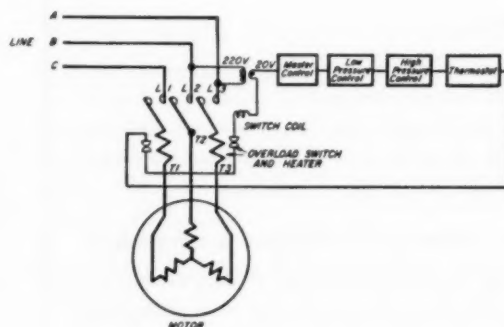
*See illustrations on next page ►*

## These diagrams will help you understand electrical servicing of packaged air conditioners

**FIGURE 1 (top right)**—Schematic diagram of 3-phase motor and controls.

**FIGURE 2 (bottom right)**—Motor starting relays.

**FIGURE 3 (below)**—Motor starting test cord.



connected across the line at all times that the motor is in operation. The starting or auxiliary winding is connected through a capacitor during the starting period only.

In some motors the auxiliary winding is used with capacitors during the running period. In such cases a relay is necessary, either to cut out the starting winding after the motor comes up to speed or to disconnect the starting capacitor.

Figure 2 illustrates the two types of starting relays. The coil of the current relay is connected in series with the running winding. The high current drawn by the winding when starting energizes the coil sufficiently to close the contactor and connect the starting winding through the coil.

As the motor comes up to speed, the winding requires less current and the relay disconnects the starting winding. This type relay is most popular on smaller motors.

The coil of the voltage coil relay is connected parallel with the starting winding. The voltage across this winding will be low when starting. The contacts on this relay are normally closed, permitting

current to flow through the starting capacitor and winding.

As speed increases, the voltage across the starting winding increases until it energizes the coil and disconnects the starting capacitor. The relay is held open by induced current from the starting winding. The voltage coil relay is more common on larger size motors and has the advantage that the same relay can be used on motors of various sizes.

### Test Cord Is Useful

A relay which remains in or goes into starting position and does not return to running indicates an overload, faulty capacitor, low voltage, or defective motor. Contacts which are burned or pitted should be replaced. Resurfacing is usually satisfactory only for a short time.

A relay which does not operate at all may be defective, or indicate an open circuit in the motor winding or wiring, or failure of any of the controls to close. These can be tested separately.

For testing and starting single-

phase motors without the relay, a test cord such as illustrated in Figure 3 is very useful. The wiring connections should be removed from the motor and the clips attached as indicated. The plug is inserted and momentary contact switch closed, which should start the motor. The momentary contact switch should be immediately released.

The fusetron should be the same as the motor ampere rating and the capacitor of the same value as the one for the motor being tested. Care should be exercised to see that the voltage is applied only for an instant without the motor running, else the fusetron will blow or the windings will be damaged. If the motor starts in this manner, the relay, capacitor, or control should be replaced.

Package air conditioners usually have fractional-horsepower motors to operate air distribution equipment. Usually one fan motor operating a blower is all that is required in a package unit. This is usually a single-phase motor which can be connected between any two

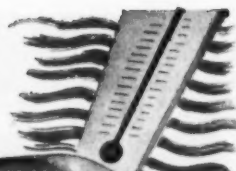
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**Bitter cold**



**or blazing hot**

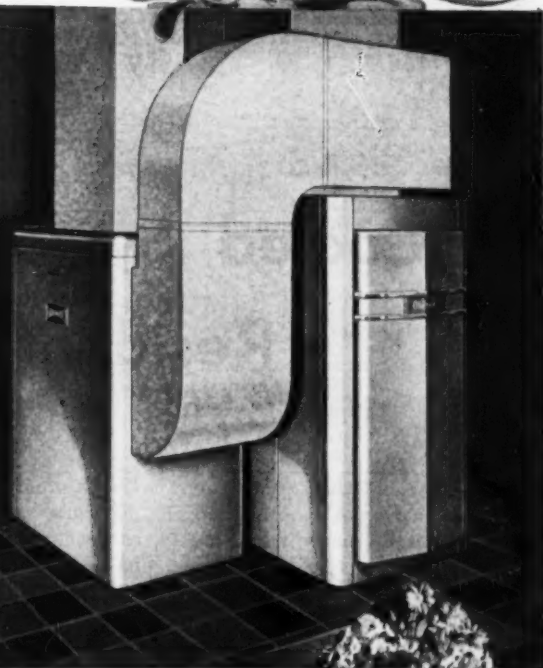


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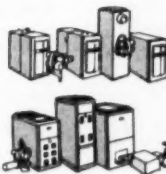


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and AIR CONDITIONING • AUGUST, 1953

# THE HEATING OF AIR CONDITIONING SIDE

By Wm. Henry Knowlton

## Air-Cooled Systems for Residential Air Conditioning

**T**HE City of Pleasant Ridge, Mich., a Detroit suburb where I have lived for many years, has just issued an edict to all citizens banning the use of residential air conditioning systems that are operated below 80 F. The same regulation prohibits lawn sprinkling between the hours of 2 and 9 P.M.

How any city is going to police such a regulation is beyond my comprehension. Somehow, the mental picture of an already overworked policeman going from house to house with a sling psychrometer on a hot August afternoon is a bit incongruous. The regulation, however, is another indication of the alarm with which municipal authorities view the rising tide of residential air conditioning systems that use vast quantities of water.

Dallas, Tex., for example, permits the use of air conditioning only when 95% of the water is reused. Numerous other communities have passed ordinances prohibiting the use of water-cooled air conditioners. Many other cities that have an adequate water supply are plagued by over-taxed water disposal systems.

With the growth of our cities, thousands of families are moving to the suburbs. The popular "ranch house" with its large picture windows becomes a veritable heat trap, even when thoroughly insulated.

Unless protected by trees, which in many new subdivisions are nonexistent, summer living conditions in the dwelling are insufferable, except when the structure is air conditioned.

Many of these new homes are built in areas far beyond the water mains, which means each must have its own well and septic tank. The cost of pumping water for use in the condensing cycle of an air conditioning system is high indeed. The water itself is seldom cold enough to do a good job of air conditioning without the assistance of refrigeration.

### Efficiency Is Proven

In the face of this growing problem it is little wonder that one major manufacturer in the industry has introduced a line of air-cooled residential air conditioning systems. At ASRE conditions — 95 F air on condenser, 80 degrees d. b. and 67 degrees w. b. — the 2-hp unit has a capacity of 1.73 tons of refrigeration and the 3-hp unit produces 2.76 tons of capacity.

Based on the success of countless thousands of room coolers now in use, larger air cooled units should operate with reasonable efficiency in most areas and be very satisfactory in use.

Both the 2-hp and 3-hp units are available in two types — a com-

plete "package" for installation in an attic and a "custom" model where the air-cooled conditioner is connected to a coil in the ductwork by refrigerant piping. In the latter case, the condensing unit itself is enclosed in a weatherproof case and located outside the structure.

The manufacturer's claim that the air-cooled units will cost less to install than water-cooled systems of the same capacity, we feel is open to considerable doubt. Everyone in the trade is aware that refrigerant piping of remote condensing units is far more expensive than water piping, and the outside duct connections for the "packaged" units would normally cost more than basement water piping.

If, however, the cost is approximately the same, there are numerous advantages to the air-cooled systems.

In the first place, the cost of condensing water is completely eliminated. It is claimed that maintenance costs will be considerably lessened, since the possibility of corrosion and blockage by elements contained in local water supplies has been eliminated.

For this reason the manufacturer claims the home owner will enjoy peak operating efficiency at all times during the life of the unit. This statement should be qualified by saying the owner will enjoy

peak efficiency so long as the condenser coil is kept *absolutely clean*. Anyone who has ever examined the air-cooled condensing coil on a household refrigerator that has been neglected for many months knows how much dust can accumulate on the coil and reduce its operating efficiency.

Air-cooled residential air conditioning systems may be applied to almost any type of house, as the air conditioning dealer has an unusual range of flexibility in choosing the most suitable type of installation. The type selected will be governed by both the physical limitations of the building and the cost involved.

#### Above the Living Space . . .

Figure 1 shows an installation in which the automatic heating system is installed in a utility room or closet, and the air conditioner is placed in the attic space above. As the "packaged" unit is only 44 inches high, it will go in low attics. The conditioned air is piped directly to the dwelling, and the condensing air enters the attic through a louvered opening and is exhausted through a duct.

Figure 2 depicts another attic installation. In this instance a horizontal furnace is installed next to the air conditioner. Air from the residence flows through the furnace and thence through the conditioning unit.

#### . . . or Beneath It

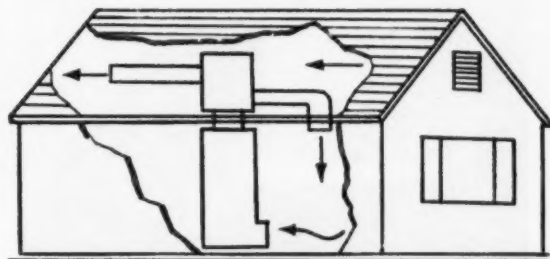
Figure 3 shows a crawl space installation under a basementless house. Here the same type of horizontal furnace is used, and the condensing air is again exhausted to the outside of the building. This type of installation is ideally adapted to a "perimeter" type of heating system which was discussed in a previous article in this series.

Figure 4 presents a schematic drawing of a "custom" air-cooled residential system where the condensing unit is located outside the building. This unit may be located on the ground, screened by shrubbery, on a deck, under a porch, or on the roof, depending upon the construction of the home. This system is ideally adaptable to homes

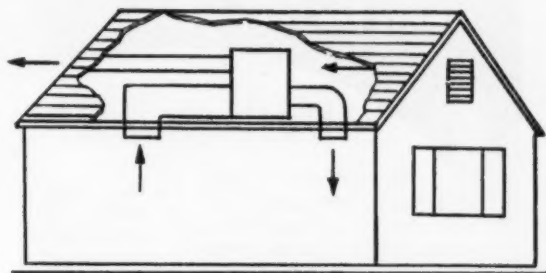
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## 4 Ways of Installing Air-Cooled Conditioning Equipment In Homes

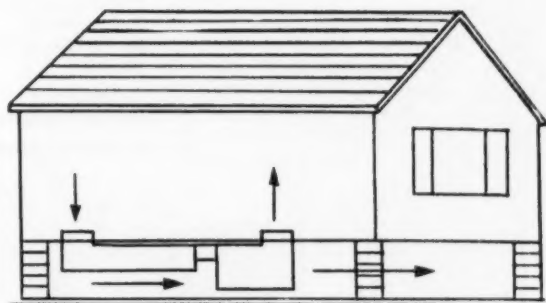
**FIGURE 1**  
Packaged cooling unit located in a low attic above a gas or oil fired furnace in a utility room.



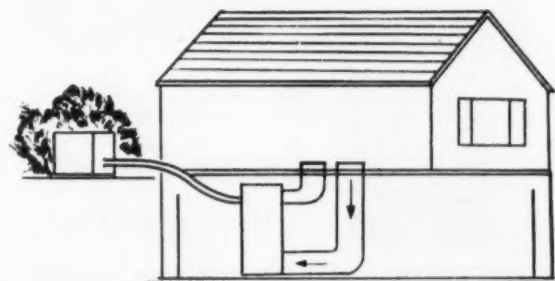
**FIGURE 2**  
Complete attic installation with horizontal furnace located next to air conditioning unit.



**FIGURE 3**  
Installation in crawl space is virtually the same as in attic, with units and air flow reversed.

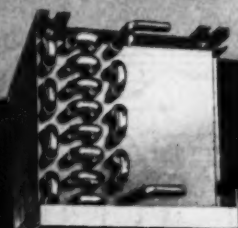


**FIGURE 4**  
"Custom" installation with cooling coil located in furnace discharge duct and condensing unit outside the house.



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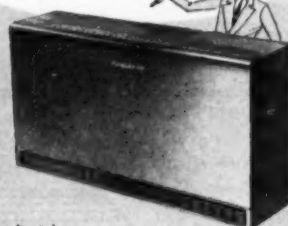
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## USEFUL LITERATURE On Air Conditioning

To obtain the information described below, simply circle on the postcard in this issue the key numbers of the items you wish to receive. We will forward your requests to the companies concerned.

**PUTTING BACK FRESH AIR** into an air conditioning system through use of its newly developed liquid absorbent, Hygrol, is described in an 8-page bulletin (No. 121) available from Niagara Blower Co. The new humidity control method removes moisture from incoming fresh air in summer by passing it through a spray of Hygrol, and disposes of it outdoors. The bulletin outlines advantages claimed for the equipment, and shows how it operates in a representative office building installation.

Circle No. 101 on Reader Service Card

**HOSPITAL VENTILATION** and installations of similar nature are featured in the new pamphlet released by Ilg Electric Ventilating Co. Descriptions and illustrations explain how various models are used in different applications. A list of air change rates is included. Other types of ventilating equipment such as gas fired unit heaters and centrifugal fans are also covered.

Circle No. 102 on Reader Service Card

**PACKAGED DEHUMIDIFIERS** manufactured by Dryomatic Corp. are covered in a specification sheet available from the manufacturer. Three models are described which can control maximum humidities from 7,500 to 25,000 cu. ft. of space.

Circle No. 103 on Reader Service Card

**CEILING AIR DIFFUSERS** are described in a catalog featuring the "Kno-draft" method of residential warm air heating presented by W. B. Connor Engineering Corp. Comparisons of both conventional and "Kno-draft" methods are included, with illustrations showing typical installations. Style and cleanliness features are also stressed, along with the ease of installation and the adaptability of this system to air conditioning purposes.

Circle No. 104 on Reader Service Card

**PERIMETER AIR DIFFUSERS** for both heating and cooling are described in an 8-page catalog issued by Titus, Inc. Illustrations included in the 2-color catalog show typical installations, diffusers with and without front panels, top and bottom views. Engineering data, complete specifications, photos of air diffusion and installation of adapter boots are also included.

Circle No. 105 on Reader Service Card

**COMPLETE LINE OF FANS** made by Westinghouse Electric Corp. is described in catalog 3FN-0301 available from the manufacturer. The catalog covers fans with 10" blades that move 420 cfm to fans with 20" blades that move 10,000 cfm. Types covered include table, wall, pedestal, hassock, ventilating and exhaust.

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(Turn to page 90 for more Useful Literature)





**IT'S THE NEW** Kno-Draft KHL Overhead Air Diffuser — combining the finest method of warm air distribution for homes with a handsome efficient lamp. It diffuses *light* as it diffuses *air*.

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# WHAT'S NEW...

## in Air Conditioning Equipment

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your requests will be forwarded directly to the companies concerned.

(For more NEW PRODUCTS turn to page 97)

### Small Cooling Tower

**Product:** "Thrifty-Tower" cooling tower for residential and industrial air conditioning systems.

**Manufacturer:** Marlo Coil Co., St. Louis, Mo.

**Features:** Complete unit is quiet, compact and light in weight. Adaptable to indoor or outdoor installation with low installation costs.



Unisection design permits simple and rapid dis-assembly if necessary. Incorporated in unit is "Lektro-Tektor" protection against electrolytic corrosion of the sump tank.

Circle No. 111 on Reader Service Card

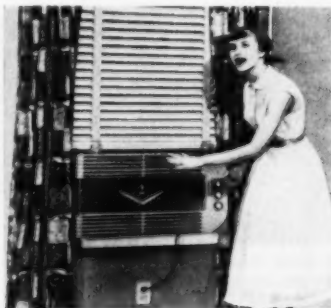
### Room Air Conditioner

**Product:** Room air conditioner for installations in rooms up to 500 sq. ft.

**Manufacturer:** Viking Air Conditioning Corp., Cleveland, Ohio.

**Features:** Unit projects only 8" into room, has three controls which permit selection of several methods of cooling and ventilating. Fan

may be used separately with cooling unit turned off to exhaust stale air from room or to bring fresh air



into it. Conditioner operates on  $\frac{3}{4}$ -hp, 110 volt, ac motor which plugs into ordinary outlet. Can be installed in any window from 28" to 48" wide. Slides into a support frame like a file drawer in a cabinet. Sealed unit carries 5-year warranty for service or replacement. Operating panel glow-lighted.

Circle No. 112 on Reader Service Card

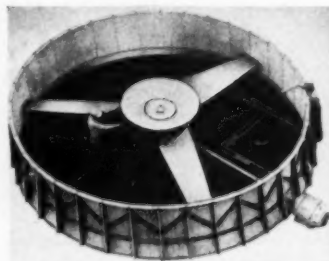
### Cooling Tower Fan

**Product:** Fan series for cooling towers or heat exchangers.

**Manufacturer:** Moore Co., Marcelline, Missouri.

**Features:** Class 7000 Type C units furnished in two basic sizes: Series 48 (48" hub diameter) and Series 72 (72" hub diameter). Furnished with any number blades, from 2 to 8 as required. Available in standard diameters up to and including 24'. Larger units available upon request. Constructed of corrosion-resistant materials, may be ordered in Monel, stainless steel, or silicon

bronze. Blades resilient mounted simulating a hinged joint which permits blade to find position in opera-



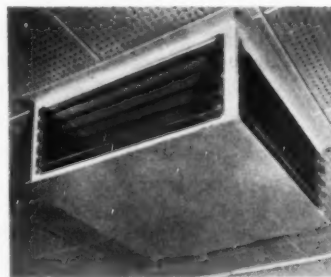
tion where centrifugal force balances out forces of lift and drag. Blade has thin, narrow tip, wide root, selected for the contour and angle of maximum efficiency. Units provide uniform velocity from hub to tip. Unitized pitch adjustment allows simultaneous adjustment of all blades in less than five minutes by means of one nut.

Circle No. 113 on Reader Service Card

### Diffuser

**Product:** Ceiling-installed diffuser for evaporative coolers.

**Manufacturer:** Ashburn Supply Co., Culver City, Calif.



**Features:** Designed in three models to fit all duct sizes for roof mounted evaporative coolers in all



## OVERCOME WATER PROBLEMS WITH NEW AIR-COOLED AIR CONDITIONER!

Chrysler Airtemp has the answer for air conditioning jobs where water is hard to get . . . where distance makes piping costs prohibitive . . . where water pressure is low . . . or where the water is very hard or corrosive. It's the new Chrysler Airtemp Air-Cooled "Packaged" Air Conditioner! But that's only a few of the advantages!

- Since Chrysler Airtemp Air-Cooled "Packaged" Air Conditioner *doesn't use water* . . . it costs less to install!
- The new, small-space Chrysler Airtemp compressor is light in weight and so quiet it can be located inside the conditioned area. It's efficient and dependable.
- The new Air-Cooled "Packaged" Air Conditioner is available in 2 and 3 h.p. capacity.

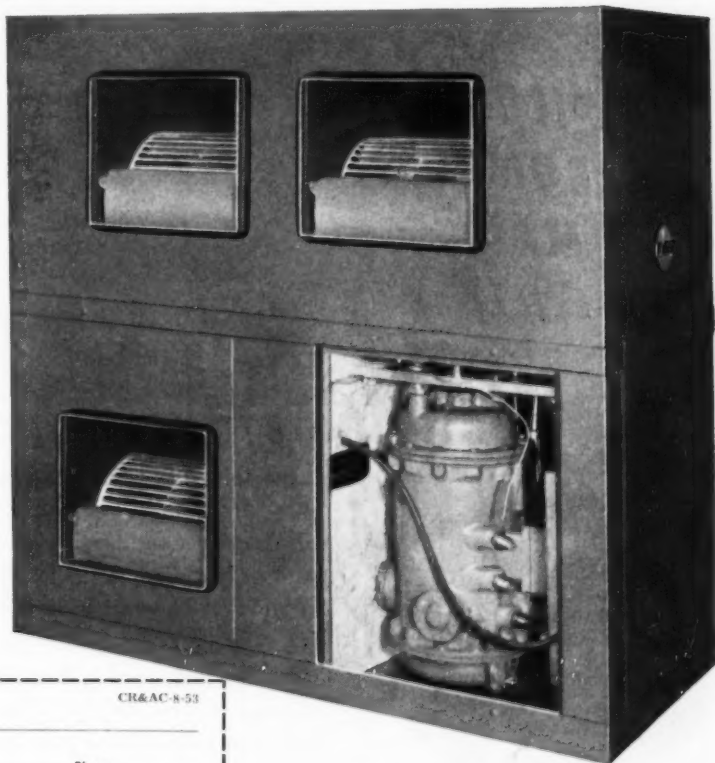
Send the coupon today for all the facts. Sell the "Packaged" Air Conditioning most people buy . . . Chrysler Airtemp!



# Chrysler Airtemp

## HEATING • AIR CONDITIONING for HOMES, BUSINESS, INDUSTRY

Airtemp Division, Chrysler Corporation  
Dayton 1, Ohio



New Air-Cooled 3 H. P.  
"Packaged" Air Conditioner

Airtemp Division Chrysler Corporation P.O. Box 1037 Dayton 1, Ohio		CR&AC-8-53	
Name _____		Address _____	
Please send full details on the Chrysler Airtemp Comfort Zone "Packaged" Air Conditioning proposition.		Phone _____	City _____
		State _____	

Circle No. 69 on Reader Service Card  
and AIR CONDITIONING • AUGUST, 1953



makes to 6500 cfm. Constructed of 26 gage cold rolled steel, unit is provided with cone interior bottom. Installation is made by inserting a screw at each corner. Sliding damper panel may be inserted during winter months to block drafts. Delivered ready for installation. Model 16 (5" deep, 15½" square) can be used with 10, 12 and 14" round pipe and small coolers. Model 18 (7" deep, 20" square) fits duct sizes to 18 x 18". Model 22 (7" deep, 24" square) fits duct sizes to 22 x 22". Finished in ivory baked enamel, aluminum painted louvers are reversible if "non-vision" appearance is desired.

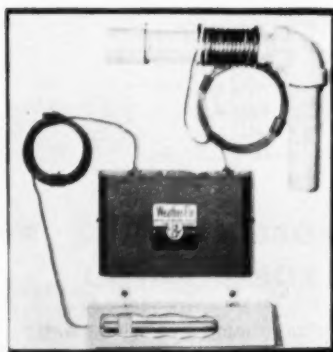
Circle No. 114 on Reader Service Card

#### Heat Controller

**Product:** "Weather-Flo" indoor-outdoor building heat controller.

**Manufacturer:** Automatic Devices Co., Inc., Western Springs, Ill.

**Features:** Outdoor thermostatic bulb measures weather conditions and resets "system" thermostat



which measures and changes temperature of water being circulated as outdoor weather changes. Eliminates peaks and valleys of indoor temperatures, keeps floors warmer, heats last "hard-to-heat" radiator as well as near radiator. Eliminates "catch-up" effect of ordinary room thermostat, stretches burner, boiler and radiator capacity nearly 15%. Six foot length of flexible copper tubing substitutes for usual system bulb, enables installation without draining system or cutting piping. Tubing simply wraps around pipe to measure temperature of water.

Circle No. 115 on Reader Service Card

#### Room Air Conditioners

**Product:** Line of four deluxe window room air conditioner models in ⅓, ½ and ¾-hp sizes.

**Manufacturer:** Coolerator Co., Duluth, Minn.

**Features:** Cabinets for all three sizes fit in window only 24" wide. Vents and control knobs located on front of cabinet. Discharges cooled air directly to ceiling. Dehumidifying action removes up to 8 gal. of moisture every 24 hours in ¾-hp unit. Automatic thermostat control comes as standard equipment. Permanent type filter is easily removed, cleaned and replaced.

Circle No. 116 on Reader Service Card

#### Dehumidifier

**Product:** Models K10-D and K12-D "Moisture Magnet" self-contained electric dehumidifiers.

**Manufacturer:** Remington Air Conditioning Div., Remington Corp., Auburn, N.Y.

**Features:** Except for electric outlet, no installation needed. For drainage, unit may be placed over

**PILOTLESS  
BOMBERS  
MADE  
WITH**



## AIR CONDITIONING

The Glenn L. Martin Company, builders of "Matador" bombers, "404" transports, and other famous planes, uses 27 Frick compressors for air conditioning and special cooling services in its great plant at Middle River, Md. These machines have been installed over a period of 16 years by the Paul J. Vincent Co., Frick Distributors in Baltimore.

For the last word in dependability and convenience, specify Frick air conditioning, refrigerating, ice making and quick freezing equipment. Let us quote on your cooling needs NOW.

Frick "ECLIPSE" Compressors Handle Air Conditioning Work with Extra Economy: ask for details.

Circle No. 70 on Reader Service Card



**AUGUST, 1953 • COMMERCIAL REFRIGERATION**



existing floor drain or pails may be used for water collection. Can be hooked up to drainage system or caster-mounted for mobility. Recommended for operation at room tem-

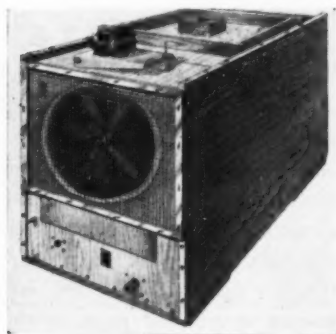


peratures of 60 to 110 F, relative humidities of 40 to 100%. May be used singly or in multiple units. Model K10D has 1-hp compressor, Model K12-D has 1½-hp compressor. Available for 208 or 230 volts, 50 or 60 cycles, single or 3-phase current and for 230 volts, dc. All models except for those with direct current have hermetically sealed compressor, factory charged with Freon gas.

Circle No. 117 on Reader Service Card

#### Cooling Tower

**Product:** Redwood cooling tower for localities with high corrosion incidence.



**Manufacturer:** Marley Co., Kansas City, Mo.

**Features:** Employs forced draft with vertical air discharge. Produced in three models capable of service in the 5 to 10-hp range. All mechanical equipment located out of hot, humid air stream. All-

redwood, all-bolted casing and basin construction provides durability. Nail-less redwood tower filling will not warp, crack or sag. Mechanical equipment and tower filling are easily and quickly accessible. Open water distribution eases speedy inspection and cleaning. Water distribution is even at any rate of flow. Stainless steel fan shaft. Bronze fan bearing is easily lubricated sleeve type. Slow running deep-pitched fan. Tower is finished with redwood resin stain, may be installed indoors or out.

Shipped completely assembled. Operable by merely making electrical and water connections.

Circle No. 118 on Reader Service Card

#### Room Air Conditioner

**Product:** Room air conditioner line.

**Manufacturer:** Admiral Corp., Chicago, Ill.

**Features:** Available in four models for rooms up to 650 sq. ft., capacities up to 11,200 Btu. Units



Now you can get PA-100, Davison's refrigeration grade silica gel in the pour spout can. With this can there is less chance of spilling the product and there is a minimum of moisture pick-up while can is open. When cap is replaced there is a positive seal assuring you of an active product at all times. And with the new pour spout can you get the same superior product that has always led all refrigerant drying agents. Unlike many refrigerant drying agents, PA-100 is completely inert . . . contains no corrosive compounds. In fact, PA-100 removes acids and corrosive compounds as well as water. Because PA-100 dries by physical absorption, not by chemical reaction, no corrosive salt or acid solutions are produced.

PA-100 is a hard granular material which will neither dust nor powder. PA-100 does not disintegrate or liquefy, never shrinks or swells in the system. PA-100 retains its particle size and shape indefinitely.

Get PA-100 in the new spout can today. For more information see your Davison Field Service Engineer or write

Progress through Chemistry

**THE DAVISON CHEMICAL CORPORATION**

Baltimore 3, Maryland

PRODUCERS OF: CATALYSTS, INORGANIC ACIDS, SUPERPHOSPHATES, PHOSPHATE ROCK, SILICA GELS, AND SILICOFLUORIDES. SOLE PRODUCERS OF DAVCO GRANULATED FERTILIZERS.

Circle No. 71 on Reader Service Card

range from  $\frac{1}{3}$  to 1 hp, extend only 3" into room. Dimensions for 1-hp unit are 26 $\frac{1}{2}$ " wide, 24 $\frac{3}{4}$ " deep and are 14 $\frac{1}{2}$ " high. Other units are



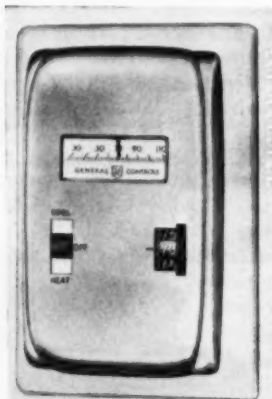
26 $\frac{1}{2}$ " wide, 22" deep and 14 $\frac{1}{2}$ " high. Twelve dial settings provided for flexibility. Units equipped with lifetime aluminum filter, permanently lubricated motor. Units fit into mounting cradle which can be installed in a few minutes. Directional flow louvers send cooled air straight out, up or down, or in any combination.

Circle No. 119 on Reader Service Card

### Two-Way Thermostat

**Product:** Model T-70H thermostat for dual purpose of controlling air conditioned temperatures in summer as well as warmth in winter.

**Manufacturer:** General Controls Co., Glendale, Calif.



**Features:** Unit has three-position switch with "off", "heat", and "cool" settings. In cold weather, "heat" position regulates furnace output just as conventional thermo-

stat. In hot weather, "cool" position and temperature regulating dial signal room temperatures to air conditioning controls. Thermostat reduces costs by eliminating need for separate thermostats and reduces installation costs with 4-wire, low-voltage thermostat cable which connects both heating and cooling control in year-round air conditioning units.

Circle No. 120 on Reader Service Card

### Ribbon-Type Sealer

**Product:** Type EC-1202 fabric-reinforced black synthetic rubber sealer in ribbon form.

**Manufacturer:** Minnesota Mining & Mfg. Co., Detroit, Mich.

**Features:** Weather-proof, water-tight seal used for air conditioning and ventilating applications as well as other gasketing operations. Sealer applied by simply laying or pressing ribbon on one surface before riveting, screwing or bolting the second surface to the first. Adhesion properties insure ribbon's sticking on vertical or overhead



Model 3 Type 100

**HOT**  
OR **COLD**

### CONDENSATE DISPOSAL UNIT

This completely automatic foolproof unit removes hot or cold condensate fluids from the receiver tank and pumps it to an outside drain. Designed for simple installation in air conditioning units, the Eastern Condensate Disposal Unit offers low operating cost with fully automatic control and quiet, reliable operation. Free specification sheet CD-10 on request.

**Eastern**  
INDUSTRIES, INC.  
296 ELM ST., NEW HAVEN, CONN.

Circle No. 72 on Reader Service Card  
AUGUST, 1953 •

COMMERCIAL REFRIGERATION

surfaces during assembly operations. Can be stripped off and re-applied if necessary. Cloth reinforcement prevents ribbon from



stretching or sagging during application, also eliminating variations in thickness and poorly sealed joints. Non-shrinking sealer contains no solvent, is not a fire hazard. Available in packaged rolls of  $\frac{1}{32}$ " and  $\frac{1}{16}$ " thicknesses; in seven widths ranging from  $\frac{1}{4}$ " to 2" and in lengths of 100 and 200 feet.

Circle No. 121 on Reader Service Card

#### Service System Package

**Product:** Service systems package for air conditioning service organizations.

**Manufacturer:** Markem Service Systems, New York City.

**Features:** Provides more efficient handling of everyday service calls. Simple operation is flexible enough to apply to any type serv-



ice being rendered. Gives greater control in handling service operation from the initial call for service to the point where the repair job has been completed and the serviceman returns. Cuts down on number of telephone operators required, gives each serviceman a complete case history, sets up all

required service records at one writing, reduces paper work, routes service calls more quickly and eliminates individual customers' files and folders. System set up so that without basic changes it can handle from 500 to 50,000 active service accounts efficiently. System consists of proportionate quantities of all forms making up the service system. Housed in a specially designed desk tray. Air conditioning service organization acquires with the package every-

thing needed to operate business from the aspect of paperwork, administration and control. To enlarge operation, merely add additional forms.

Circle No. 122 on Reader Service Card

#### WALLIN HEADS UNITED'S FOOD PLAN IN SOUTH

Charles "Chuck" Wallin will head United Refrigerator Co.'s "Four Freedoms Food Plan" in six deep-south states.

**"Keep Cool with ESTON!"**

#### METHYL CHLORIDE • SULFUR DIOXIDE

Distributor of "Kinetic" Chemicals' "Freon" refrigerants

"FREON 11"—"FREON 12"—"FREON 21"

"FREON 22"—"FREON 113"—"FREON 114"

In Standard Containers

Eston Refrigerants  
Are Sold by Leading  
Refrigeration  
Wholesalers  
Everywhere

**CHARGE-A-CAN**  
Disposible Container  
with "Freon 12"—"Freon 114"  
Sulfur Dioxide



#### ESTON CHEMICALS DIVISION

American Potash & Chemical Corporation

3100 East 26th Street, Los Angeles 23 • 60 East 42nd Street, New York 17

SALES OFFICES IN ALL PRINCIPAL TRADING AREAS

Circle No. 73 on Reader Service Card



*Handy Bender says*



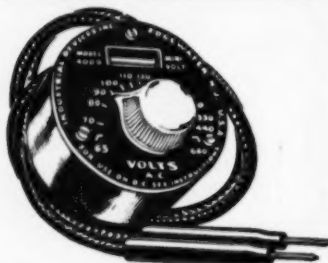
**"The shortest time between two points is a bend!"**

Here's a new geometric theorem you can paste in your hat: the shortest time between two points is a bend. You are wasting time and money if you are using old-fashioned "el" fittings to turn corners. Handy Benders eliminate the need for els by bending all kinds of pipe and tubing right on the job... from  $\frac{3}{8}$ " to  $1\frac{1}{8}$ " O.D. with a twist of the wrist. Save yourself time and money by bending.

*Handy*

Ask your supply house, or write today to

**HOLSCLAW BROS., INC.**  
410 WILLOW ROAD  
EVANSVILLE, IND.



## THE MINI-VOLT

Hundreds of thousands of these handy voltage indicators are in everyday use. A proved, useful tool that takes the place of costly, delicate instruments. Once you try it — you'll never want to be without it.

**RUGGED!** Neon lamp indicator stands overloads, mechanical shocks. Lasts a lifetime. Measures AC or DC from 60 to 660 volts. Practically indestructible.

**ACCURATE!** Indicates 2-3 volt difference at 110 volts. Use for checking fuses, continuity, shorts, live lines, grounds, voltage drops, etc. Over 1001 uses!

Model 400B. Includes 12" insulated leads and test prods.

**\$3.75** LIST

Order from your jobber.  
Write for free catalog...

**industrial devices, inc.**

EDGEWATER II, N. J.

Circle No. 75 on Reader Service Card

90

**USEFUL**

**BULLETINS • BOOKLETS • CATALOGS**

The publications listed below are available to readers without charge. Simply circle on the postcard in this issue the key numbers of the items you wish to receive. Your requests will be forwarded directly to the companies concerned.

**MAGNETIC MOTOR STARTERS** are illustrated and described in an 8-page folder prepared by Arrow-Hart & Hegeman Electric Co. In addition to type RA-V starters, this two-color, illustrated booklet contains complete information on Crouse-Hinds M52 Type EPC explosion-proof condulets, for which the starters were especially manufactured. The "right angle" type operation of the starter is described and an illustration shows how it works. Photographs and illustrations cover other features.

Circle No. 131 on Reader Service Card

**ALL ALUMINUM ICE MAKERS** manufactured by Tenney Engineering, Inc., are described and illustrated in a 4-page, 2-color brochure available from the company. Describing the "Kwik-Freeze" ice makers, this brochure contains photographs of the units with descriptive literature for each of the models. Dimensions as well as tray and total cube capacities are included.

Circle No. 132 on Reader Service Card

**PRESSURE AND TEMPERATURE RELIEF** valves manufactured by Kunkle Valve Co. are illustrated and described in Bulletin 137-41 offered by the company. Sectional drawings illustrate construction details. Complete dimensions and capacities are charted. Installation suggestions and applications are listed.

Circle No. 133 on Reader Service Card

**BLOOD BANK RECORDING ALARM** thermometers are described in a 4-page bulletin (No. T853) presented by Bristol Co. Information on application of the thermometer on blood banks for recording temperatures held in the refrigerator is included with a description of the alarm system which operates in case of temperature rise or fall.

Circle No. 134 on Reader Service Card

**A CAPACITOR INDICATOR** instrument which indicates the exact rating of any capacitor and indicates whether a capacitor is open or shorted is the subject of a bulletin available from Lindell Electric Control Corp. A complete description of the instrument with a photograph of the unit in its carrying case is included. Operating instructions are also given.

Circle No. 135 on Reader Service Card

**SOLDERING IRONS** and soldering iron tips for industrial uses are detailed and illustrated in bulletin GEA-4519 available from General Electric Co. Photographs show typical applications and "exploded" photographs show construction features. Cross-section views demonstrate important particulars.

Circle No. 136 on Reader Service Card

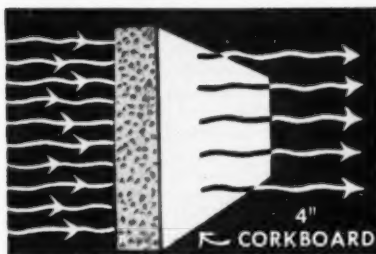
(More Useful Literature on page 92)

**AUGUST, 1953 • COMMERCIAL REFRIGERATION**

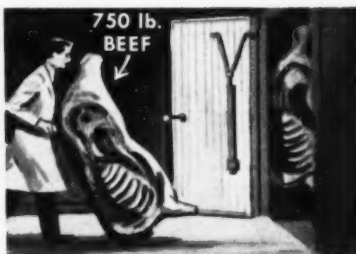


# What Size Condensing Unit Would You Specify For This Meat Cooler?

This walk-in meat cooler is 10' x 10' x 10'—has 4" of corkboard insulation—outside temperature of 90°—inside required temperature of 35°—receives a 750-lb. beef daily.

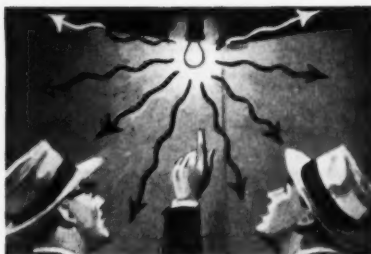


**Insulation Losses**—2079 B.T.U. per hour—Some heat gets through any insulation. For 4" cork, the Kelvinator engineer assigns a heat leakage factor of .063. This figure multiplied by the outer surface of the cooler (600 sq. ft.), then by the difference between the inside and outside temperatures (55°) gives an hourly insulation loss of 2079 B.T.U.



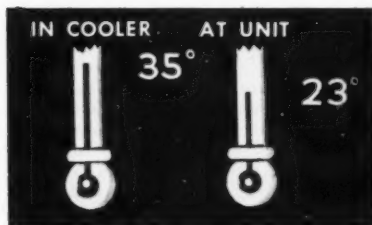
**Product Load**—1540 B.T.U. per hour—Assume a 750-lb. beef at 90° temperature (and with a specific heat of 0.75) is put in the cooler each day. Heat must be removed but not too quickly; you're not freezing the meat. Ideal time to lower the temperature of the beef to 35° is 20 hours.

$$\frac{750(\text{lbs.}) \times .75(\text{sp. heat}) \times 55^\circ}{20 (\text{hours})} = 1540 \text{ B.T.U.}$$



**Service Load**—2740 B.T.U. per hour—Lights, motors, people generate heat. On this job, a service load factor of 1.63 is computed. After the interior volume of the cooler (9' x 9' x 9' = 729 cu. ft.) is multiplied by 55° temperature difference, the answer is multiplied by 1.63, then divided by 24 (hrs.).

$$\frac{729 \times 55 \times 1.63}{24} = 2740 \text{ B.T.U.}$$

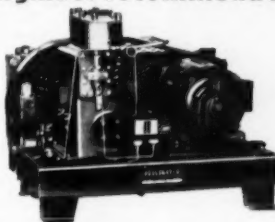


**Average Suction Temperature**—23°—To maintain a 35° temperature in the cooler requires a lower suction temperature at the condensing unit. On this job, the temperature difference between cooler and unit figures out to be 12° (including a 1° drop in pressure). Therefore, the condensing unit must have an average suction temperature of 23°.

When these three "loads" are added together, the hourly Refrigeration Load totals 6359 B.T.U. Since a condensing unit should operate only 16 hours out of 24, the hourly B.T.U. rate is computed at 9538 (6359 multiplied by 24, then divided by 16). 8-hour "rest" period for defrosting.

## Here's the unit the Kelvinator engineer recommended:

Now knowing that the condensing unit must pump out 9538 B.T.U. every hour and have a suction temperature of 23°, the engineer now turns to his Kelvinator catalog. It contains data on 50 different units—16 Hermetics, 34 open-types (16 air-cooled, 18 water-cooled). His search is quickly pinpointed to one specific Kelvinator unit—the WO-100H (1 H.P., open-type, water-cooled). This is the unit that will deliver the maximum efficiency for this particular job.



**How much cooling do you need?** No matter what your refrigeration requirements are, your Kelvinator engineer will give your installation the same careful analysis as he did on this job. You can be assured he will recommend the unit that's just right for you. Contact your nearest Kelvinator Distributor or Zone Office for full information and prompt service.

Leaders in commercial  
refrigeration for 38 years

# Kelvinator

Division of Nash-Kelvinator Corporation, Detroit 32, Michigan

Circle No. 76 on Reader Service Card

and AIR CONDITIONING • AUGUST, 1953

# INCREASE SALES

AMERICA'S MOST COMPLETE  
AND FINEST LINE  
of COOLERS

# BEVCO

they GIVE  
PERFORMANCE *RUS*  
YEAR AFTER YEAR!

Here's DRY refrigeration at its best. Here's trouble-free performance that tells—and sells! The BEVCO 5-year warranty guarantees superior service. Accessories that are sales makers — water equipment, dividers, casters, stainless interiors, exteriors available on all models.

RESULTS COUNT!

The BEVCO Company, Inc.  
3316 28 S. BROADWAY • ST. LOUIS 18, MO

WRITE FOR  
CATALOG C1

## Better on "1001" Pumping Duties

Capacities  
to 150 G.P.M.

Heads  
to 500 Ft.



APCO Two-Stage Turbine  
Type Pump for High  
Pressure Service

Apco—the pump with but one moving part, the impeller — is famous for long-lived, efficient performance on small capacity, high head duties. Available in Single Stage, Two Stage and 4-Stage Tandem for high pressures — and Water Jacketed for high temperature and highly volatile liquids.

Write for Bulletins  
111, 111-A, 111-WJ



DISTRIBUTORS IN PRINCIPAL CITIES



# AURORA

  
PUMP COMPANY

SUBSIDIARY OF THE NEW YORK AIR BRAKE COMPANY  
21 LOUCKS STREET, AURORA, ILLINOIS

Circle No. 77 on Reader Service Card

## USEFUL LITERATURE . . .

Continued from page 90

**STEAM & LIQUID CONTROL** equipment is described in a catalog offered by O. C. Keckley Co. Complete specifications, operational data and prices are included for the complete line of pressure regulators, temperature regulators, combination pressure and temperature regulators; diaphragm, motor operated, float, pop-safety and relief valves; strainers, solenoid and motor valves, and water gages. Capacity tables, flange charts and a table of water heads are included.

Circle No. 137 on Reader Service Card

**RUBBERIZED ABRASIVES** are described and illustrated in an 8-page catalog offered by Cratex Mfg. Co. Catalog No. 53 contains complete information on rubberized abrasives for use in burring, smoothing and polishing operations. Grit types, applications, deterioration resistance and operating suggestions and recommendations are listed. Photographs illustrate many applications.

Circle No. 138 on Reader Service Card

**HEAT EXCHANGE EQUIPMENT** is described and illustrated in a 16-page catalog available from Patterson-Kelley Co., Inc. Catalog No. 5 contains two sections; one part covers hot water storage heaters, the other discusses heat exchangers. Tables are included for selection of correct equipment for given operating conditions. Typical examples demonstrate use of the tables. Cut-away views and complete specifications are included.

Circle No. 139 on Reader Service Card

**TEMPERATURE CONTROLLERS** with direct reading are presented in bulletin F-5783 by Wheelco Instruments Div., Barber-Colman Co. Highlighted in this catalog is the line of model 200 series "Capacitrols". Model 221C, with "Capaciline" for straight line temperature control is also featured. Information on operation of units, accuracy, proportioning control and electronic control principle are listed. Operating diagrams and specifications are also given.

Circle No. 140 on Reader Service Card

**NON-METALLIC DISC VALVES** are detailed in a 4-page, 2-color brochure offered by Lunkensheimer Co. Circular No. 558 covers the line of "NMD" valves for use on steam, hot and cold water, air, gas, oil, gasoline, butane and propane. Sectional views show construction features and an "exploded" drawing shows the principle parts of the valves in detail. Dimensions of globe, angle, lift check and quick operating valves, as well as information on the non-metallic discs are included.

Circle No. 141 on Reader Service Card

**SAUSAGE AND CHOPPED MEATS**, their composition and manufacture, are covered in a 40-page, pocket-size booklet offered by Koch Supplies. Recipes, methods and equipment used in the preparation of all types of sausages are included. Illustrations show various pieces of sausage-making and chopped meat equipment from skewer-type thermometers to self-contained smokehouses.

Circle No. 142 on Reader Service Card

(See page 82 for Air Conditioning Literature)

## HIGH EFFICIENCY! LOW COST!

### AIR CONDITIONING CONDENSATE PUMP

Here is a pump for use against a head of water up to 15 feet. Capacity is 1000 gallons per hour with no head. Has a totally-enclosed G. E. ball bearing motor for 110 volts A.C.



ONLY \$25

**STANDARD ELECTRIC**  
MANUFACTURING CO., INC.

WEST BERLIN 53, N. J.

## BIG BUYS

IN SMALL PRECISION

### FLOAT CONTROL VALVES

For controlling water in humidifying units, pan fillers, air conditioning equipment, evaporative coolers, and air washers. No. 51 and 52 Valves accurately maintain water lines as low as 1" deep. Float adjustable. See your jobber or write us.



No. 51



No. 52

Only 5 1/4" long overall. Non-corrosive metals throughout. Easy to install by drilling one hole. Capacity 1/2 gal. per minute at 50 lbs. pressure.

8" long overall. Same features as No. 51 Valve, except larger capacity—1 gal. per minute at 50 lbs. pressure.



#### QUICK HOOK-UP SADDLE VALVE

Fits 1/2" and 3/4" pipe. To install, just drill 1/4" hole in pipe. Outlet provided for 1/4" O.D. copper tubing.



#### HANDY NEEDLE VALVE

Ideal to control water supply to humidifiers and water valves. 1/4" I.P. male end and 1/4" O.D. copper tube size outlet.

SEE YOUR JOBBER OR WRITE

**MAID-O'-MIST, Inc.** 3216 N. PULASKI ROAD  
CHICAGO 41, ILLINOIS

Circle No. 80 on Reader Service Card  
and AIR CONDITIONING • AUGUST, 1953

## REFRIGERATION AT ITS BEST!



### Kungsholm Scandinavian Restaurant

CHICAGO, ILLINOIS

By the use of DOLE VACUUM COLD PLATES, incorporated in this specially designed, cold plate surface dispensing table, uniform low temperatures are constantly maintained. Cold food delicacies are always kept appetizingly fresh and tasty until served . . . DOLE VACUUM COLD PLATES are available in lengths and widths to fit any standard or special dispensing cabinets, tables, or shelves.

WRITE FOR CATALOG AAE



### DOLE REFRIGERATING COMPANY

5942 N. Pulaski Road, Chicago 30, Ill.  
103 Park Avenue, New York 17

In Canada: Dole Refrigerating Products, Ltd.  
44 Eglon Street, Brantford, Ontario

Maximum Refrigeration Efficiency

# DOLE

MANUFACTURERS OF  
THE *Cel* LINE

Circle No. 79 on Reader Service Card



# WHY IT MEANS EXTRA BUSINESS

refrigerating oil that *won't wax out* means clean, efficient operation. *Texaco Capella Oil (Wax-free)* won't precipitate wax in the system *even at temperatures down to minus 100° F.* This means satisfied customers . . . extra business.

In tests and actual service, *Texaco Capella Oil (Waxfree)* has proved its outstandingly low haze and floc temperatures . . . its stability and resistance to oxidation. *Texaco Capella Oil (Waxfree)* does not foam, is moisture-free, will not react with re-

frigerants.

There is a complete line of *Texaco Capella Oils (Waxfree)* to meet the needs of every type of compressor, every type of refrigerant. You can get them in 55-gallon drums, 5-gallon, 1-gallon and 1-quart containers—all *refinery-sealed* to protect their purity and quality.

☆ ☆ ☆

The Texas Company, 135 East 42nd Street, New York 17, N. Y.



## **TEXACO** Capella Oils (Waxfree)

FOR ALL REFRIGERATING AND AIR CONDITIONING COMPRESSORS

Circle No. 82 on Reader Service Card

AUGUST, 1953 • COMMERCIAL REFRIGERATION



# THE COMMERCIAL REFRIGERATION and AIR CONDITIONING

## APPLICATIONS MANUAL

by Hugo C. Smith

Readers are invited to submit their problems to this department. Each letter of inquiry will be answered personally by the author. All problems should be clearly and completely stated and addressed to: COMMERCIAL REFRIGERATION AND AIR CONDITIONING, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.

### Sell More and Better Jobs By Helping Your Customers Figure Their Own Loads

**L**OAD estimating may well be used by the commercial refrigeration sales engineer as the first step in obtaining customer confidence and subsequent favorable buying response. This is particularly true in the highly competitive jobs experienced in most urban centers.

The average buyer of commercial refrigeration today has enough knowledge of the subject to be impressed by a sincere effort to provide equipment that will adequately meet his needs. The engineer who accomplishes this will find himself far ahead of the competitive "pack".

It would be foolish, however, to assume that purely price buyers will not be encountered. It is just as illogical to presume that all buyers of commercial refrigeration want the cheapest job possible. They don't all buy the cheapest cars or the cheapest television sets. Show them the difference. Explain why.

Impress on them that it is *their* job, *their* decision, *their* money. "I" and "my" mean little to a customer. "You" and "yours" or "they" and "theirs" means a lot. Avoid phrases such as "I sold", or "I'm selling such and such". Use instead, "They bought from us", "they will buy", or "when you buy".

Buying is a pleasurable experience to most people. They like to feel that they themselves produced the initiative and "bought". Having been "sold" something is an expression they reserve for unfortunate purchases. So let's stuff our ego in our hip pocket and start working for the man who

pays the bill. The best time to start is on the initial call, when the load is to be estimated.

Many refrigeration buyers have a pre-conceived idea of the compressor horsepower they need. This idea usually has been planted by a competitive refrigeration man or a friend in the same business as your prospect. It may be based on some manufacturer's "table", on a job installed 15 years ago, or just on someone's guess.

Many manufacturers' "tables" published 10, 15 or even 20 years ago, are still in use, but coolers today in many fields are being subjected to usage and product loads far in excess of what was encountered a few years ago. Lower temperatures and quicker pull-downs are being demanded more than previously, particularly in the wholesale produce, poultry, dairy and meat business.

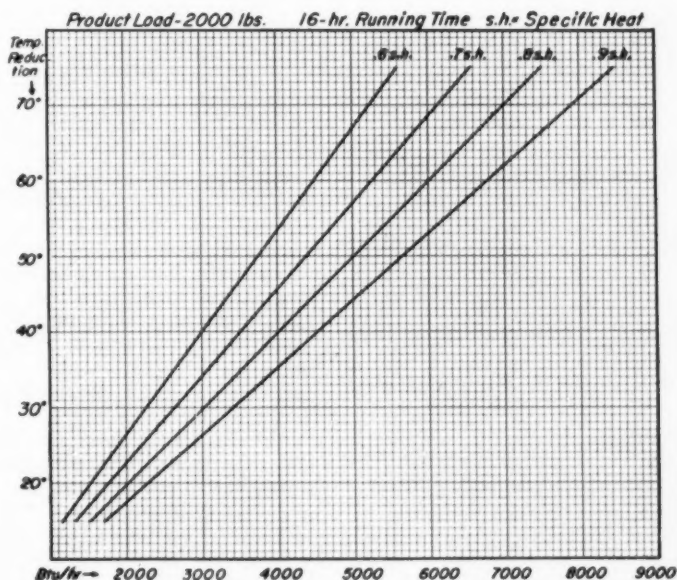
After 25 years in the industry, this writer seriously questions any design conditions other than maximum. Light service can, and many times does, change to extra-heavy service within a 30-day period, due to increases in business, new products, or new methods of handling.

Light product loads arriving at relatively low temperatures may change rapidly to heavy loads arriving at high temperatures. We are convinced that the above is the rule rather than the exception.

In most instances it is a definite advantage to be able to estimate your load, at least tentatively, on the job during your initial call. The ASRE method, we believe, is the simplest and the best. It can be reduced to surprisingly simple terms that will hold true for 90% of your requirements for each industry.

For instance, in the previously mentioned wholesale cold storage field, on coolers running from 1600 sq. ft. of surface and up, we simply multiply square feet of outside surface by a

*Continued on next page*



CALCULATING PRODUCT LOADS becomes a very simple matter with the use of this specially devised graph. A detailed description of the proper method of using it is contained in the accompanying article.

**T**HIS month's Applications Manual was prepared by Hugo C. Smith, a veteran of 25 years in the commercial refrigeration business and manager of the commercial department of Refrigeration Sales Corp., Cleveland contracting firm. Smith's articles, chock-full of "down-to-earth" information of practical value to the commercial refrigeration sales engineer, will appear alternately with articles by William M. Brewer on air conditioning applications.

factor of 10. This factor includes heat loss, usage load, and lights.

The factor 10 is obtained by using the ASRE method of calculating heat loads, based on local conditions, and then dividing the answer by the square feet of surface with which we started. We use factors of 8, 9, or 10, depending on conditions encountered. With this approach, it now becomes possible for you to figure your loads directly in front of the customer. Be sure he watches you. Even get him to do the figuring himself if you can.

Here is the way the calculations would work out for a typical produce cooler, assuming outside room dimensions of 20 x 20 x 10', temperature reduction of 60 degrees between the 95 F ambient surrounding the cooler and the 35 F to be held inside the cooler, and a 16-hour compressor operation.

Multiplying the dimensions of the cooler gives an outside surface of 1600 sq. ft. Then multiplying this area by the previously established factor of 10 provides a figure of 16,000 Btu/hr, which represents heat loss and usage load combined. For example:

$$\begin{aligned} 20 \times 20 \times 10 &= 1600 \text{ sq.ft.} \\ 1600 \times 10 &= 16,000 \text{ Btu/hr} \end{aligned}$$

Now, subtracting this figure from the known capacity of a condensing unit at 20 degrees suction temperature will clearly indicate the capacity available for product load, as follows:

	3-hp	5-hp
Compressor capacity	30,000 Btu	46,600 Btu
Heat loss and usage	16,000 Btu	16,000 Btu

Available for product 14,000 Btu 30,600 Btu

As pointed out previously, this calculation shows the amount of capacity available for product load. If the cooler under discussion were to be used to handle mixed vegetables, an average specific heat of .9 could be assumed. Multiplying this by a 30-degree temperature reduction (65 F to

35 F), by 2000 pounds, and then dividing by the number of hours of compressor operation will give the product load in Btu/hr/ton, as in the following example:

$$\frac{.9 \times 30 \times 2000}{16} = 3375$$

The accompanying graph accomplishes this same calculation very quickly by simply reducing common product loads to Btu/hr/ton. Following the 30-degree temperature reduction line across the graph to the point at which it intersects with the .9 specific heat curve, and then dropping straight down to the Btu/hr line, will give you the same product load of 3375 Btu/hr.

We have previously determined that we have compressor capacity of 14,000 Btu/hr available for product load using a 3-hp unit and 30,600 Btu/hr using a 5-hp unit. Now let's divide this out in front of the customer—or, better yet, let him divide it himself—using round figures, as follows:

$$\begin{aligned} \frac{14,000}{3400} &= 4 \text{ tons, or,} \\ \frac{30,600}{3400} &= 9 \text{ tons} \end{aligned}$$

You have now very easily reduced the load problem to terms that your customer can understand. You will be amazed at the number of buyers who will pick the larger unit, of their own accord. Competitive bids on a room of this size frequently will run from 2 to 3 hp, despite the fact that the room will easily hold 9 or 10 tons of produce and the customer is known to buy in carload lots.

We recommend that a detailed load estimate always be made in presenting the formal proposal, but this method of quick estimation will prove adequate for a great majority of jobs. It offers the added benefit of enabling the sales engineer to do a real selling job on his prospect by completing the load calculations right before his eyes on the very first call.

The engineer must realize, however, that there are many intangibles in any product load estimate, and these should be taken into consideration in making the final calculations for the proposal. Your proposal also should carry the product load figures worked out for different temperatures and longer or shorter pull-down periods.

By using 16 hours cooling time in our quick estimate, we compensate for the heat of evolution on a mixed produce room. Packaged products piled closely together will give up their heat very slowly, taking as long as 24 to 36 hours, depending upon the size of the pile and the type of the package.

Don't forget that the most important thing in making your load estimates on that first call is to let your customer talk. Give him a chance to buy his own job, instead of having you sell it to him. By using this basic technique, orders may easily be obtained at prices ranging from 25 to 50% above the quotations of the competition. This "peddler's paradise" is just waiting for the man smart enough to let his customer "help" decide what equipment he requires to best fill his needs.

**P**UBLICATION of a new design and installation manual covering summer air conditioning has been announced by the National Warm Air Heating & Air Conditioning Association. Title of the manual is "Manual II — Summer Air Conditioning for New and Existing Residences."

The manual's objective is to furnish a design and installation procedure aimed at providing homeowners with cooling comfort with a minimum of installation and operation costs. This procedure has been developed for residential applications only.

The manual contains information on the use of summer cooling with either slab or crawl space warm air perimeter heating systems. Charts and tables for the design of a summer air conditioning system for use with the small pipe system as well as the conventional forced warm air heating system are included.

The manual was prepared by the Summer Air Conditioning Committee of the National Warm Air Heating & Air Conditioning Association with the aid of the Air Conditioning & Refrigerating Machinery Association and the National Association of Home Builders. It is priced at \$1 per copy. Copies can be obtained by writing the National Warm Air Heating & Air Conditioning Association, 145 Public Square, Cleveland 15, Ohio.

**NEW**

# PRODUCTS

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your requests will be forwarded directly to the companies concerned.

(For Air Conditioning Products turn to page 84)

## Merchandising Rack

**Product:** Merchandising rack for display cases.

**Manufacturer:** Weber Showcase & Fixture Co., Inc., Los Angeles, Cal.

**Features:** Designed to fit on "Blizzard Super" ice cream and



frozen food cases and "Zero-Master" frozen food case. Rack fastens snugly to the rear of the refrigerated merchandising compartment of the cases. Provides an extra shelf for sale of specialty items.

Circle No. 151 on Reader Service Card

## Degreaser Solvent

**Product:** Brulin solvent degreaser.

**Manufacturer:** Brulin & Co., Inc., Indianapolis, Ind.

**Features:** Practically non-toxic and non-inflammable, solvent is safe to use without special safety or ventilating equipment. Acts and dries quickly, is applicable where speed is essential. Particularly efficient for cleaning electric motors as it has no adverse effects upon electrical insulation. Does not contain carbon tetrachloride or other toxic chlorinated solvents. Highly concentrated solvent available in drums from 5 to 55 gallons.

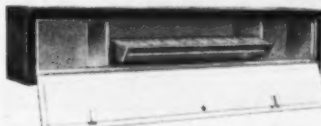
Circle No. 152 on Reader Service Card

## Truck Compartments

**Product:** Standardized metal utility compartments for converting a pick-up truck into a mobile shop.

**Manufacturer:** J. H. Holan Corp., Cleveland, Ohio.

**Features:** Compartments have removable trays with adjustable partitions for separated storage spaces for small parts. Trays slide forward for accessibility. Compartments available in three lengths; 72, 84, and 105". All measure 12" wide by 14" high. Small size has single door, larger sizes have double doors. Water-tight doors formed of



two layers of steel, will not sag or bend out of shape. Flush-type door handles. Compartments can be mounted flush to truck body, allowing entire body width for carrying bulky equipment, etc. No special mounting equipment needed, installation can be made in few hours.

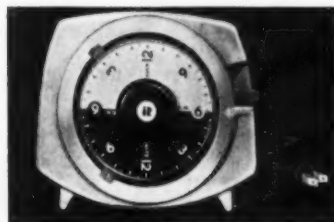
Circle No. 153 on Reader Service Card

## Defrost Timer

**Product:** "Time-All" electric timer for automatic defrosting at exact time day after day without resetting.

**Manufacturer:** International Register Co., Chicago, Ill.

**Features:** Length of defrost period can be varied from 1 to 12 hours or longer. Defrosting can be readily adjusted to any type refrigeration equipment. Manual switch enables user to skip defrosting for one or more nights without changing setting on the timer. Settings



marked on 24-hour dial. One pointer is set at time defrosting is to start and another pointer at the time defrosting is to end. Dial also shows time of day. Timer is 5" wide, 4" high and 2 1/2" deep, has 6' cord. Gray plastic case can be set on table, counter or any other place near appliance or it can be hung on the wall. Weighs less than 2 lbs., operates on 110-125 volts, AC only. Minimum time on or off is 1 hour; maximum on or off time is 23 hours. Timer can be used on other fixtures such as fans, lights, etc.

Circle No. 154 on Reader Service Card

## Open Refrigerator

**Product:** Model 01 "Island Merchandiser" refrigerated spot-item table.



**Manufacturer:** Warren Co., Inc., Atlanta, Ga.

**Features:** Table has Thermopane display guards on all four



sides, capped with stainless steel. Completely self-contained for simple plug-in installation. Automatic elimination of drain, no plumbing required. Porcelain exterior is available in other colors than white. Highly brightened fluted aluminum trim and aluminum casing.

Circle No. 155 on Reader Service Card

#### Soldering Flux

**Product:** "Tins-Tyter" concentrated soldering flux.

**Manufacturer:** Remont Mfg. Co., Lombard, Ill.

**Features:** Flux can be used on most metals and alloys, assures tinning, instant positive bonding and thorough penetration into joints and seams of heavily oxidized metals or alloys difficult to solder. Suitable for solder-iron, flame or dip soldering, requires only minimum heat necessary to melt solder, leaves clean lines and smooth surfaces. Flux residue can be easily removed with water.

Circle No. 156 on Reader Service Card

#### Sandwich Unit

**Product:** Combination "Bain Marie" sandwich unit.

**Manufacturer:** Dunhill Soda Fountain Corp., Brooklyn, N. Y.

**Features:** Unit contains five 6 x 6" and five 6 x 9" one-piece drawn stainless steel pans, stainless steel refuse hood and refuse drawer. Has automatic door light, 2" x 10" x 4' laminated maple cutting board,



110-volt duplex electric outlet, and a terminal box at the bottom of the unit. Pure vegetable corkboard insulation is completely sealed in with asphalt cement to prevent heat infiltration. Front facing, storage compartment, capping and bread drawers are stainless steel. Side walls constructed of 24-gage steel and the bottom of 20-gage. All joints are electrically welded and soldered for a water-tight seal. Die-formed bottom has large radius corners, is indented and pitched to 1" brass drains for quick cleaning. Overall length is 4', mounted on individually adjustable legs.

Circle No. 157 on Reader Service Card

#### Rust Cutting Oil

**Product:** "Rust Cutter" rust cutting oil sprayed from aerosol can for loosening nuts, bolts, studs, etc.

**Manufacturer:** James R. Kearney Corp., St. Louis, Mo.

**Features:** Particularly useful in freeing rusted fastenings on hard-to-get-at equipment. Packed in 6 oz. can that dispenses fine spray of rust cutter when valve is depressed. After short spray from 6" to 8" distance, two-minute wait permits compound to eat into rust so nut can be loosened easily. Freon is used as the propellant.

Circle No. 158 on Reader Service Card

**For Recognized Quality - Extra Gallons**

## Sell Your Condensing Unit

### - Filtrine Water Coolers



Mess Hall-Cafeteria Cooler



Photographic-X-ray Cooler



Typical "Packaged" Circulating Chilled Water System

Promote your own condensing unit sales with Filtrine's 20-year-life construction...high capacity... Super Storage... more than 40 years' dependability.

#### COOLERS FOR MESS HALLS - CAFETERIAS

Conform with Fed. Spec. 00-C-566b

#### COOLERS FOR X-RAY & PHOTOGRAPHY

#### PACKAGED CIRCULATING CHILLED WATER SYSTEMS

#### REMOTE COOLERS FOR ALL USES

Sell your condensing unit with Filtrine Stainless Steel or Duco finished cabinets, equipped to suit with top/side shelves, bubblers, glass-fillers. Can be Taste-Master equipped to remove chlorine, rust, sediment from water.



Taste-Master

Sell your condensing unit with Filtrine models repeatedly named by V.A., Signal Corps, Air Force, etc. for X-ray, and photo-labs. Under counter design and floor-mounted models with stainless steel work-table top. Filters (extra) to prevent scratched and pin-holed negatives.

Sell your condensing unit! Systems for drinking or processing water—completely packaged with pump, controls, your condensing unit factory installed. Capacities 5—400 g.p.h.; storage 5—150 gals. Filters and Rectifier-Dechlorinators (extra) to insure taste-free, sparkling water.



Remote Model Coolers

Sell your condensing unit with remote models for new and replacement jobs—all applications. Capacities 10—1000 g.p.h.; storage 7—300 gals. Filters, Rectifier-Dechlorinators available for all sizes.



**Write for Catalog and Specification Guide**

FILTRINE MANUFACTURING COMPANY • BROOKLYN 5 • N. Y.

"Water Coolers and Filters for 40 Years"

Circle No. 83 on Reader Service Card



### Water Cooler

**Product:** Model 7471 mechanically refrigerated water cooler.

**Manufacturer:** Star Metal Mfg. Co., Inc., Philadelphia, Pa.

**Features:** Single overhead shelf furnished with two stainless steel wire baskets, each holding 24 glasses. Cooler is constructed of highly polished stainless steel, modern base has rounded front corners. Incorporates special-design stainless steel water cooling tank which provides both instantaneous water cooling and water storing for peak loads. Has capacity of 150 to 200 glasses per hour, based on 75 F in-



coming and 45 F outgoing water in an 80 F ambient room temperature. Cooler stands 48" high, 21" deep and 23" wide. Another model with identical internal machinery has two 14x20" shelves on the side of the unit. These shelves hold 96 glasses and four stainless steel wire baskets are furnished. With side shelves instead of overhead shelf, cooler has overall width of 51", 36" height.

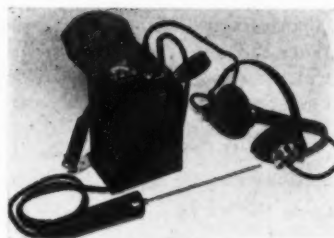
Circle No. 159 on Reader Service Card

### Noise Detector

**Product:** Audio-video model of "Elec-Detec" portable electronic instrument for locating noise sources in all types of mechanical equipment.

**Manufacturer:** Anco Instrument Div., American Name Plate & Mfg. Co., Chicago, Ill.

**Features:** Model V includes a milliammeter for checking sound impulses visually, in addition to standard headphones for audible operation. This combination enables operator to "see" as well as hear the



source of trouble in bearings, pistons, gears, ratchets, cams, etc. Accurate performance of video unit is assured through use of highly stable germanium crystal diode in

the circuit. This crystal rectifies the current to record electrical impulses accurately on the d.c. milliammeter and to provide the wide frequency range required.

Circle No. 160 on Reader Service Card

### Compressor Rack

**Product:** Steel rack for remote compressor installations.

**Manufacturer:** Frigidaire Div., General Motors Corp., Dayton, Ohio.

"This tool kit  
is my bread and butter.  
I never forget to lock it!"



"Every mechanic who invests in good tools feels the same way. The right kind of tools help put more dough in your pay envelope.

Take my advice and stick with Bonney—the *best* wrenches at standard tool prices.

If you're short of cash once in a while—then take a look at BON-E-CON\* tools. Like *all* Bonney tools, they're real knuckle-savers. And they carry the regular Bonney guarantee."

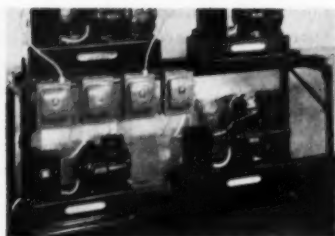
Remember. Your local Bonney Jobber, as well as Bonney, stands behind the tools you buy. He has Bonney tools priced to fit your needs as well as your pocketbook.



\*The new Bonney  
economy-priced line

**BONNEY FORGE & TOOL WORKS • ALLENTOWN • PENNSYLVANIA**

Circle No. 84 on Reader Service Card



**Features:** Rack is built to hold as many as six compressors and their electrical controls in a small amount of space. The rack is designed primarily for installation in

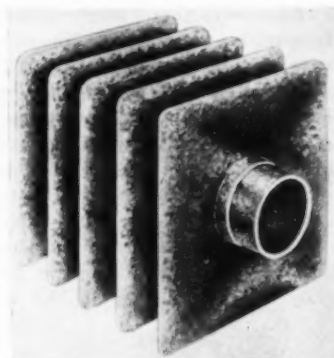
supermarkets, chain stores, restaurants and other establishments which require several compressors operating a number of refrigerated fixtures. The rack is available in double-deck 40 and 80" sizes. Extensions may be added if required. Circle No. 161 on Reader Service Card

#### Freezer Section

**Product:** Evaporator surface for producing low temperatures in refrigeration systems.

**Manufacturer:** Industrial Mfg. & Engineering Co., Chicago, Ill.

**Features:** Applications include freezer rooms, holding rooms and



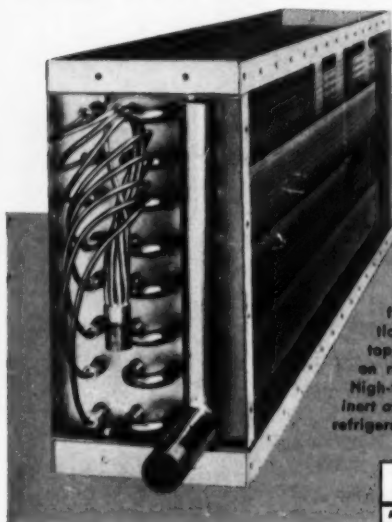
work rooms in meat plants, fisheries, dairies and wherever refrigeration is needed. Made of 2-3/8" o.d. 13-gage steel pressure tube with 14 gage, 7 x 7" square steel fins. Fins stamped with large collar to furnish abundant contact between fin and tube. Assembly hot dip galvanized after fabrication. Made in three fin spacings: Series 60, 2" spacing, 4.42 sq.ft. per lineal foot; Series 80, 1 1/2" spacing, 5.68 sq.ft. per lineal foot; Series 120, 1" spacing, 8.21 sq.ft. per lineal foot. Available in three tube lengths, 5', 6'-8", and 10'. Ends furnished plain for welding or flanged for bolting.

Circle No. 162 on Reader Service Card

Throw out the fans!  
I want...

**Tenney**

#### Standard 4-Row Air-Conditioning Coils, AC4 Series



5 capacities in 11 popular sizes with F-12, F-22 refrigerants.

for stores, homes, and offices...where built-up systems are used with duct distribution.

1. 3/8" O. D. copper tubing. 2. "Facetized Fins" of faceted-surface aluminum for greater heat transfer and dehumidification efficiency. 3. Heavy-gauge steel end, top, and bottom plates (aluminum available on request). 4. All copper suction headers. 5. High-temperature hard solder tube joints with inert atmosphere inside tubes for clean scale-free refrigerant passages.

Model No.	Nom. Tons	Finned Lgth. Hgt.	Dimensions			Face Area	Recomm. CFM.
			A	B	C		
ACA-2A	2	29"	2 1/2"	3 1/2"	1 1/2"	1.51	750
ACA-2B	2	30"	1 1/2"	3 1/2"	1 1/2"	1.56	750
ACA-3A	3	29"	1 1/2"	3 1/2"	2"	2.37	1125
ACA-3B	3	22"	1 1/2"	3 1/2"	1"	2.29	1125
ACA-5A	5	36"	1 1/2"	4"	1"	3.75	1875
Complete range of models and sizes							
ACA-7 1/2 A	7 1/2	43"	1 1/2"	4 1/4"	1"	5.60	2800
ACA-7 1/2 C	7 1/2	36"	2 1/2"	4 1/4"	1 1/2"	5.63	2800
ACA-10A	10	58"	1 1/2"	4 1/4"	1"	7.56	3750
ACA-10B	10	48"	2 1/2"	4 1/4"	1 1/2"	7.50	3750

It's NEW!—the ideal line of standardized direct-expansion coils. It's the one line that can be recommended, sold and installed with complete confidence, backed up by the sound engineering and quality construction that guarantee the best—when you specify TENNEY!



**Tenney**  
ENGINEERING, INC.

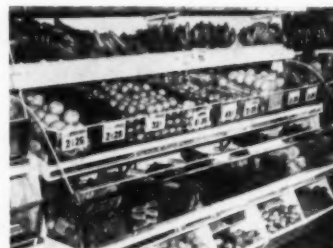
Manufacturers of Automatic Temperature, Humidity, and Pressure Control Equipment

Circle No. 85 on Reader Service Card

No matter what your refrigeration problem... there's a Tenney unit to solve it. Tell us yours and we'll show you how. Tenney Engineering, Inc., Dept. F, 26 Ave. B, Newark, N. J.

#### Produce Case

**Product:** "Vegmart" produce case designed for neighborhood stores where floor space may be at a premium.



**Manufacturer:** Fogel Refrigerator Co., Philadelphia, Pa.

**Features:** Case is available in 6, 8 and 10' lengths. Middle deck is refrigerated for produce. Equipped with hidden overhead cooling coil that automatically defrosts and

maintains correct humidity and temperature to keep leafy vegetables in perfect condition. Top deck is dry display for citrus products; bins along bottom offer display area for potatoes, onions and other "hardware" vegetables. Middle and top decks are illuminated by hidden fluorescent lights; top deck has mirrored back to multiply mass display appearance. Cases available for either "unitized" or remote compressor installations. Ends are removable for end-to-end installation.

Circle No. 163 on Reader Service Card

#### Hermetic Pump

**Product:** Hermetically sealed pump for liquid Freon refrigerants.

**Manufacturer:** Heatron, Inc., York, Pa.

**Features:** For application to refrigeration recirculating systems to increase efficiency and to simplify controls. Particularly effective on low temperature and ultra-low tem-



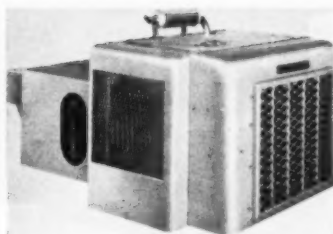
perature Freon refrigeration systems. Single and multiple evaporators may be handled under varying head and flow conditions. Patented oil return automatically holds oil concentration in evaporators to a minimum. Pumps are available in 8 sizes ranging from 4 to 40 gpm against heads up to 50 psi, with motors from 3/4 to 3 hp.

Circle No. 164 on Reader Service Card

#### Truck Refrigeration Units

**Product:** "North Star" M-20 mechanical refrigeration unit.

**Manufacturer:** U. S. Thermo Control Co., Minneapolis, Minn.



**Features:** When truck is on the road, unit operates on gas engine. When at the dock the unit may be plugged into electric current. Two other models available in North

Star series are M-10 powered by gas engine only and M-40 powered by electric motor. Units contain "Uni-pak" one-piece construction and are easily installed. Temperature control automatically regulated.

Circle No. 165 on Reader Service Card

#### Flow-Indicating Switch

**Product:** Magnetically coupled flow-indicating switch.

**Manufacturer:** Winterburn Mfg. Co., Putnam, Conn.



"That @\*#& system went dead again.  
Get a man right over!"

## Stop those callbacks due to moisture!

### Install McINTIRE DC FILTER-DRIERS

charged with the *New*

## PERMAGRAN\*

U. S. PAT. NO. 2,625,516

Hardened, stabilized granular desiccant

**T**HE new instant-acting, long-acting PERMAGRAN desiccant dries fast and thoroughly—provides extra capacity to guard against future moisture.

PERMAGRAN is made by a patented process that prevents powdering, dusting or breakdown under any refrigeration conditions. Permanent granular form provides greater absorptive surface area, with minimum pressure drop. Dries to minus 60° dew point on the first pass—effective at all liquid line temperatures. Capacity 20 drops per cubic inch. For all refrigerants.

Ask your wholesaler for PERMAGRAN in McIntire DC Filter-Driers.

\*Trademark Reg. U. S. Pat. Office

**THE McINTIRE COMPANY, LIVINGSTON, NEW JERSEY**

Our 28th Year



**DRIERS** PERMAGRAN DESICCANT  
FILTERS—STRAINERS

Circle No. 86 on Reader Service Card

For Eye-Level



Readings...

# AUTO-LITE



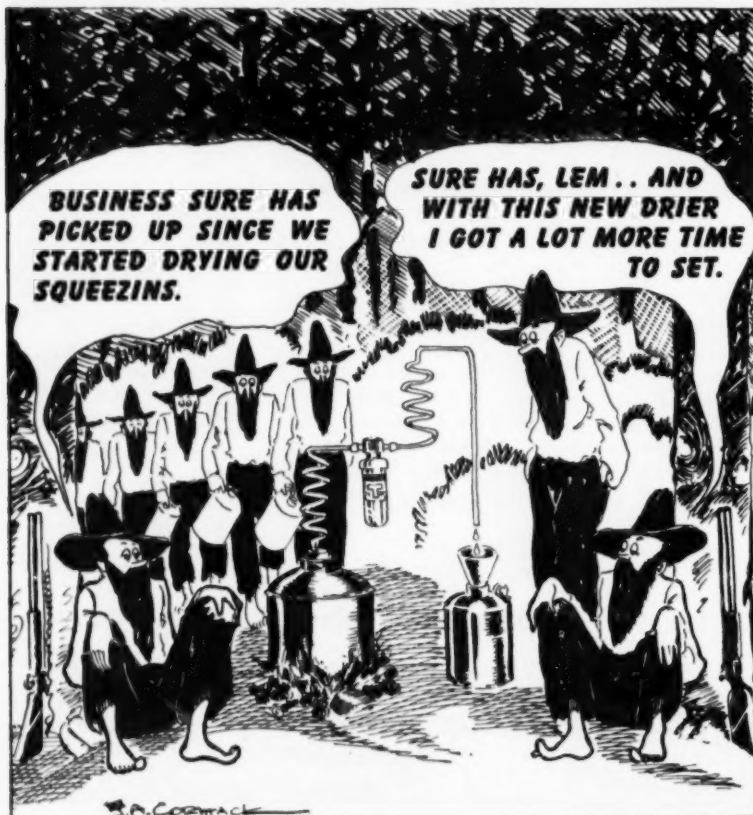
## ...TEMPERATURE INDICATION

Auto-Lite offers many thermometer styles, permitting plant-wide temperature observation at low cost. Standard temperature ranges from minus 60°F to plus 750°F. Send for latest catalog showing various types.

Model F-1 temperature indicator—Rigid stem or capillary tubing for EYE-LEVEL remote reading. Priced from \$22.

**THE ELECTRIC AUTO-LITE COMPANY**  
INSTRUMENT AND GAUGE DIVISION  
TOLEDO 1, OHIO  
NEW YORK • CHICAGO • SARNIA, ONTARIO

## TEMPERATURE INDICATORS & RECORDERS

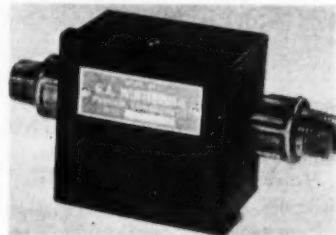


**BUSINESS SURE HAS PICKED UP SINCE WE STARTED DRYING OUR SQUEEZINS.**

**SURE HAS, LEM... AND WITH THIS NEW DRIER I GOT A LOT MORE TIME TO SET.**

A. C. CORMACK

**Features:** Electrical circuits for signalling flow or non-flow of liquids through pipe lines can be controlled with this switch. Developed for use with water and other liquids not injurious to brass or copper. Flow is sensed by movable vane positioned within flow tube. Variation from desired rate of flow causes chrome-plated Alnico magnet, affixed to the movable vane, to actuate contacts of a mercury magnetic tube positioned outside



flow tube. Device is constructed with 1/2 IPS brass fittings for easy installation in flow line. Switch available in two models. One model allows maximum flow of 2.5 gpm, can be adjusted for sensitivity of .1 to .6 gpm. The other model has adjustable range of .25 to 1 gpm, allows a maximum flow of 4 gpm. This control unit can be used in lines of greater capacity by installation of by-pass and regulating valve arrangements.

Circle No. 166 on Reader Service Card

### FHP Motors

**Product:** Two special-service, fractional-horsepower motors for applications requiring moderately high starting torque.

**Manufacturer:** General Electric Co., Schenectady, N. Y.

**Features:** Rated at 1/2 and 3/4-hp, 1725 rpm, motors can be mounted in any position, are easily reconnectable at the terminal board for 115 or 230 volts. With starting currents that conform to NEMA standards, motors can be used in evaporative coolers, attic fans, compressors and other installations. They are an extension of the 1/4-1/3-hp Form G special-service motor series started by GE last year.

Circle No. 167 on Reader Service Card

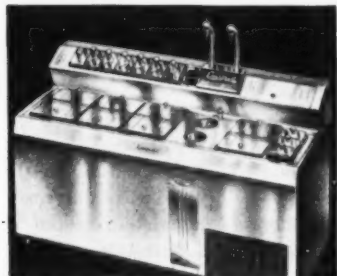
**BUY FROM YOUR REFRIGERATION WHOLESALE**

SEE PAGE 6



## Soda Fountains

**Product:** "Fountainette" soda fountains and drink dispensers.



**Manufacturer:** Everfrost Sales, Inc., Gardena, Calif.

**Features:** Only installation required is attaching water line and electrical connection. Self-contained unit has complete fountain dispensing service, ice cream capacity range of 20, 30 and 40 gallons. The compressor, carbonator, and water cooler are all enclosed in a space-saving package. Utilizes three temperature controls, one serving the cold storage compartment and the syrup bank, one for plain and carbonated water cooling, and the third control for the ice cream storage compartments.

Circle No. 168 on Reader Service Card

## Display Cabinet

**Product:** Models SG-12 and SG-15 frozen food display cabinets.

**Manufacturer:** Ace Cabinet Corp., New Bedford, Mass.

**Features:** Low wattage heating element is installed beneath lower door track of cabinet to reduce condensation. Heating element assures



clear visibility of the interior through double pane glass doors which glide on rollers. Doors can be removed during rush periods. Outside shell of cabinet made of welded steel, rust-proofed and finished with high-gloss baked white

enamel. Corkboard and glass fiber insulation maintains low temperature inside case. Hermetically sealed condensing unit is mounted on "glide-out" mechanism for simple accessibility for cleaning or service. Superstructure is one-piece, welded steel construction, finished exactly like the cabinet and is easily attached. It is furnished with full color pictures, product strips and prices. Lighting is built in. Model SG-12 holds 495 standard frozen food packages. Dimensions without superstructure are about 53 x 30 x

36". Model SG-15 holds 665 standard frozen food packages and is about 65 x 30 x 36" without superstructure.

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## JOHNSTON TO HANDLE CROSELY APPLIANCES

George L. Johnston Co. has taken over the exclusive distribution in the Detroit area of the full line of appliances and electronics of the Crosley Div., Avco Mfg. Corp.

# Superior Globe Valves

are built with quality  
and the serviceman in mind



SIZES— $\frac{7}{8}$ " thru  $4\frac{1}{8}$ "

**Superior valve and fittings co.**

Pittsburgh 26, Pa.

Circle No. 88 on Reader Service Card



## CEILING DIFFUSERS . . .

*Continued from page 75*

ducts branch out from the latter to the centers of the rooms below.

In the expansion-attic house, the main duct is located in the eave space and the room ducts are laid between the joists and floored over. In the low headroom "utility" attic, position of the ducts is unimportant.

Sizing of the diffusers follows standard warm air procedure. An

outlet is selected with the same neck diameter as the duct size required by the heat loss of the room. The diffusers operate at an average outlet velocity of 500 fpm for heating and 700 fpm for cooling. Selected for heating, the same unit is ideal for cooling as the latter usually requires a 25% increase in fan capacity.

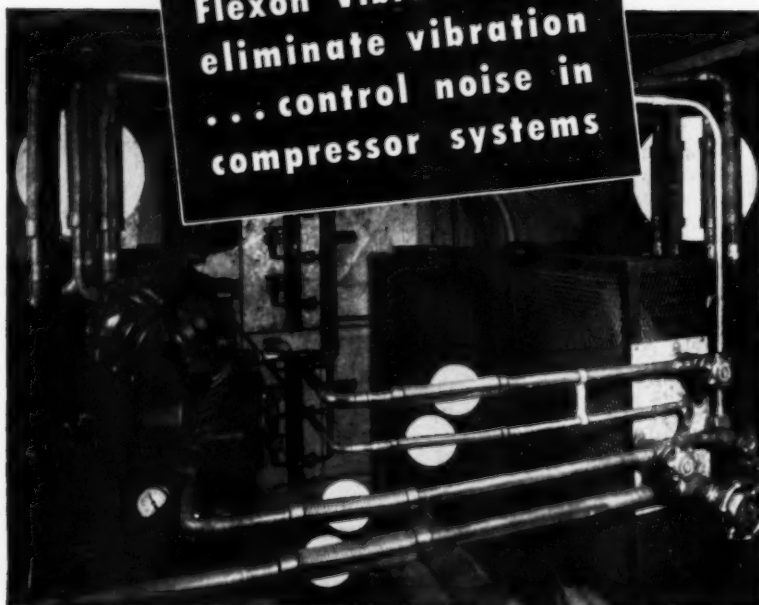
During the heating season the return grilles in the baseboards under the windows serve two purposes. Besides drawing off the lower temperature floor-level air they also

catch cool air falling down the windows, in effect providing a curtain of insulation. For return ducts we "pan" the joists wherever possible.

We've found installation costs to be somewhat under other warm air methods, excepting, of course, the simplest type.

The diffuser-baseboard return system has a number of other points in its favor. With the outlets in the ceiling, living room is increased and there is complete freedom in decoration and furniture arrangement. Another advantage is its cleanliness. Operating costs are moderate because the heated or cooled air is thoroughly circulated.

**Flexon Vibra-Sorbers  
eliminate vibration  
... control noise in  
compressor systems**



The Flexon Vibra-Sorber is a standardized, corrugated flexible metal connector for eliminating vibration and dampening sound in refrigeration and air conditioning systems. As a result, the Vibra-Sorber protects rigid piping from vibration stress and assures the leakproof conveyance of refrigerants. Compressor noise is kept out of piping and ducts. All-metal assemblies have high resistance to corrosion and fatigue and retain gas- and air-tightness even after being subjected to vibration over long periods of time.

The Vibra-Sorber is available in bronze with copper tube ends in sizes from  $\frac{1}{8}$ " to 4" I.D. and in steel in sizes from 5" to 12" I.D. Write for complete information.



### CHICAGO METAL HOSE Division

**Flexonics Corporation**

1321 S. Third Avenue • Maywood, Illinois  
Manufacturers of flexible metal hose and conduit, expansion joints, metallic bellows and assemblies of these components.  
In Canada: Flexonics Corporation of Canada, Ltd., Brampton, Ontario

Circle No. 89 on Reader Service Card

## HEATING SIDE . . .

*Continued from page 81*

already equipped with winter air conditioning systems, provided the fan capacity is sufficient to handle the cooling load. As we have already mentioned, the cost of refrigerant piping should be taken into consideration. It should be compared with the cost of water connections, provided ample water is available in the area.

Still another type of installation, which is not illustrated, would be to mount the condensing unit inside the basement and run air intake and air outlet ducts to the outdoors. For instance, in a residence being converted to automatic heat the coal bin opening could be used for air intake or exhaust, and it would only be necessary to make one other opening through the masonry. Cutting openings in poured masonry is an expensive process, however, and so every effort should be made to find a suitable location for the air-cooled condensing unit outside the structure.

The complete 3-hp "packaged unit" used in this air-cooled system, weighs 522 pounds. Take the cost of this unit and divide the dollars by the number of pounds. Then take the cost of your automobile and divide the dollars by pounds of weight. Then compare, and see what cost reductions may some day be possible when residential air conditioning is being sold to millions of American homes.

The present market for residential air conditioning is estimated at

Flexon identifies CMH products that have served industry for over 50 years.

some 20 million homes. And with over 1 million new homes being built each year, members of the residential air conditioning fraternity will be busy for some time to come. Considering comfort, health, reduction in home cleaning costs, and all the other advantages of residential air conditioning, equipment presently on the market, both air cooled and water cooled, presents an excellent value to the average home owner.

## ELECTRICAL SYSTEMS . . .

*Continued from page 78*

of the three lines in a three-phase supply.

In practice, the blower motor is wired so that it must be in operation while the compressor is running in order to prevent frosting of the coil.

Open type motors have no starting relay. Instead they have a centrifugal switch, part of which is on the rotor or shaft and part on



the end bell, which performs the same function. A capacitor is mounted on the motor frame. Overload protection is sometimes built in.

When an open motor will not start, but will run after being started by hand, the first step should be to check or replace the capacitor. If that does not correct the difficulty, the centrifugal switch should be replaced. If a replacement switch is not available, a relay of the proper voltage and horsepower may be used, connected as in Figure 3. These motors are

reversed by reversing either the starting or running winding, but not both.

The repulsion-start, induction-run motor (commonly called repulsion-induction) has the running winding in the stator and the starting on the armature, with a commutator and brushes. The brushes do not connect to the line but are short circuited together and connected to the frame.

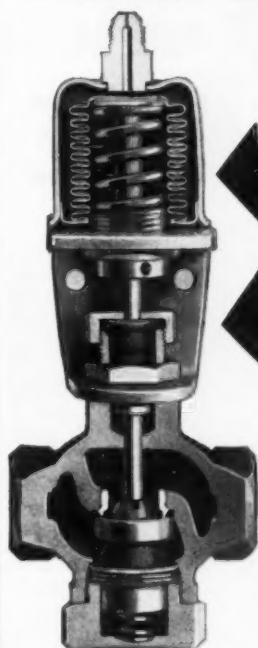
The armature current is induced by magnetic induction, the line being connected directly to the stator

winding. A centrifugal device short circuits the commutator and usually lifts the brushes as the motor comes up to speed.

The repulsion-induction motor has excellent starting torque and low starting current. It was formerly used exclusively for single-phase condensing units. It is reversible by shifting the brush position. It is not adaptable to sealed units. The repulsion-induction motor has been largely replaced by the capacitor motor in the refrigeration and air conditioning field.

# TWO BIG REASONS

**for insisting on  
Marsh-Electrimatic Regulators**



**TWO-PLY BELLOWS**

**NEOPRENE BOOT**

**Two-ply bellows has more  
than twice the life of single-ply**

Break-down tests prove that the Marsh-Electrimatic two-ply bellows has  $2\frac{1}{2}$  times the life of an equivalent one-ply bellows. This is because a single ply bellows must be made of heavier gauge metal . . . and naturally the heavier metal rapidly breaks down under the fatigue of flexing.

**Boot eliminates packing — friction**

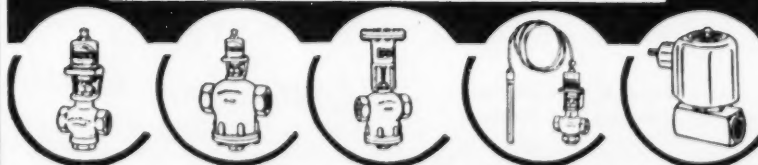
At one time the best way to eliminate packing was with a metal bellows, but this Neoprene boot has all the advantages of a bellows plus ten times its life. We have repeatedly proved this, too . . . by cycling the boot, without failure, under actual operating conditions *ten*

*times as long as we could cycle the best metal bellows.*

These are just two of the many features that make the Marsh-Electrimatic last longer and function better. They are typical of plus values found in the entire Marsh-Electrimatic line. Write us or see your wholesaler.

THE ELECTRIMATIC CO. Sales affiliate of Jas. P. Marsh Corporation, Dept. P, Skokie, Ill.

## MARSH-Electrimatic



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# 1

Your No.1 DEMAND...

the **CONDENSER** must be

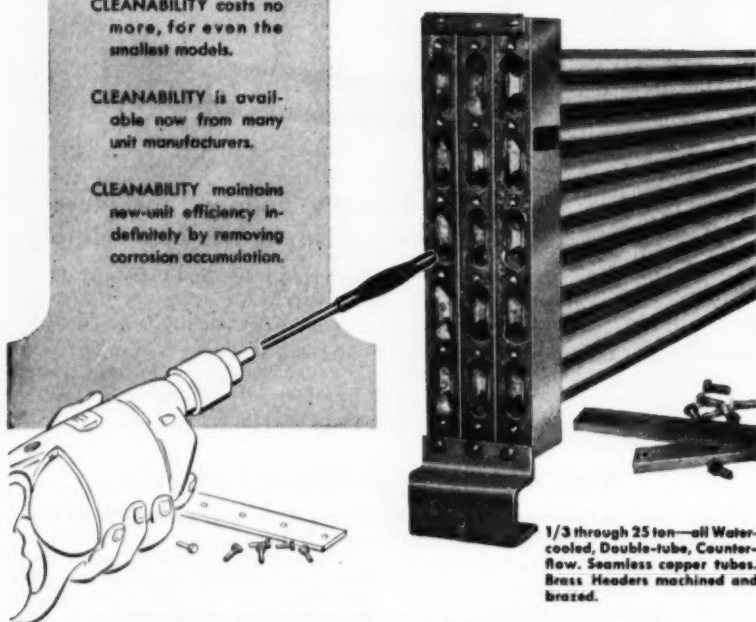
# CLEANABLE

*Because....*

CLEANABILITY costs no more, for even the smallest models.

CLEANABILITY is available now from many unit manufacturers.

CLEANABILITY maintains new-unit efficiency indefinitely by removing corrosion accumulation.



Why not insist that your next unit have a CLEANABLE water-cooled condenser? Especially since leading manufacturers, one after the other, are recognizing the "must" advantages of accessibility to cleaning and are equipping their units accordingly. Initial purchase cost is no higher, and longer life and more economical performance are guaranteed. The CLEANABLE feature enables you to recover new-unit efficiency and thus maintain 100% economical operation indefinitely. Water-tubes are accessible from both ends on all size models.

Wholesalers in Principal Cities  
Write for descriptive literature.

**HM**  
*Halstead & Mitchell*

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# does it again!

## FOR THE FIRST TIME... 2 AND 3-TON EXPANSION VALVES WITH EXTERNAL EQUALIZERS

Down through the years, the refrigeration industry has come to look to A-P for many important "firsts." Now, far-sighted A-P engineers have produced another "winner!" It's the new Model 205-CE thermostatic expansion valve . . . available for the first time with external equalizers — in 2 and 3-ton sizes, for Freon 12 or Freon 22.

This new valve, an adaptation of the job-proved 205-C, is ideal for furnace air-conditioning units . . . new or replacement. Both 2 and 3-ton sizes employ the field-tested, leak-free A-P method of sealing the pins, to give a packed-pin construction which will withstand many years of rugged service.



MODEL 205 CE  
for Freon 12  
and Freon 22

## And here's why the Model 207-C is still an ALL-INDUSTRY "FIRST"



MODEL  
207-C  
Thermostatic  
Expansion  
valve

- 1** It's now made with or without external equalizer . . . for Freon 12, Freon 22 or Methyl Chloride . . . in ½-ton and 1-ton sizes.
- 2** Versatile A-P liquid charge makes valve ideal for all applications . . . low temperature, commercial or air-conditioning.
- 3** It maintains "straight-line" superheat. Less than ½ variation from -20° to +40° suction temperature.
- 4** New smaller size plus ease of installation make it a real boon to servicemen. Fits handily in those hard-to-get-at corners.
- 5** Jobbers need stock only one valve type to meet an exceptionally wide variety of demands.
- 6** Service organizations need buy fewer valves to have units available for all emergency repairs. Shop and truck service stocks can be kept to a minimum.

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Thermostatic  
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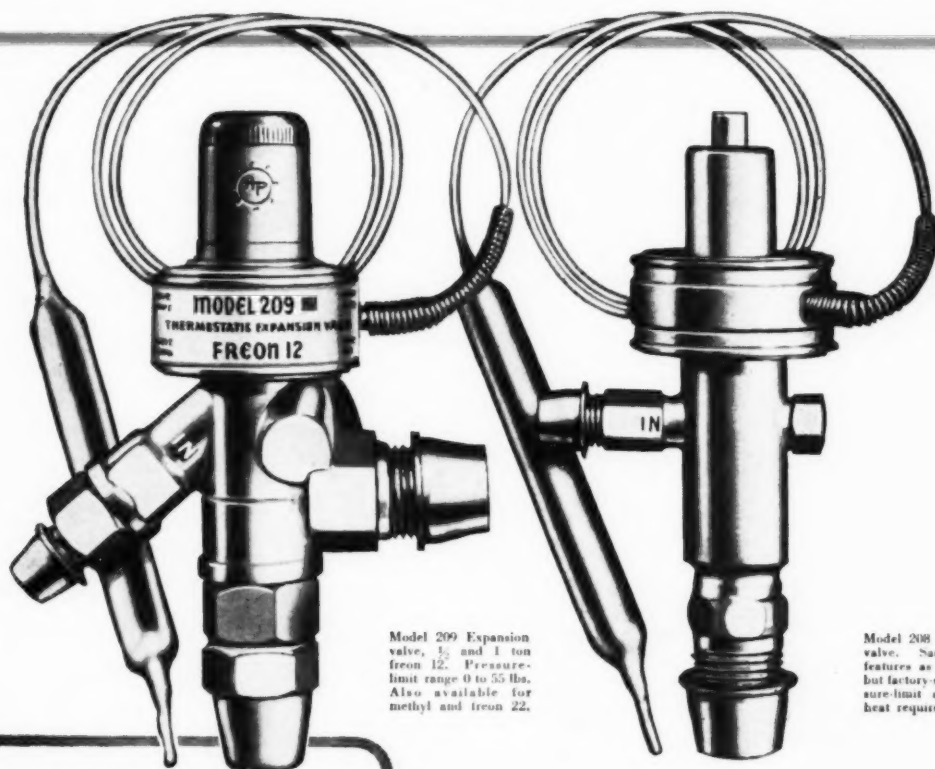
Water-  
Regulating  
Valves

Pressure-  
Limiting  
Valves

**DEPENDABLE Controls**

Circle No. 92 on Reader Service Card

## THESE VALVES BEAT TROUBLE TO THE PUNCH!



Model 209 Expansion valve, 1/2 and 1 ton from 12. Pressure-limit range 0 to 55 lbs. Also available for methyl and freon 22.

Model 208 Expansion valve. Same unique features as Model 209 but factory-set for pressure-limit and superheat requirements.

### Get all these...

Unique pressure-limit mechanism with ADJUSTABLE range of 0 to 55 lbs.

If pressure rises beyond normal, valve throttles automatically, holding pressure to preset limit and preventing motor overload.

Heavy forged leak-proof body. Super-hard stainless valve needle, stainless seat and springs for trouble-free service.

Clearly marked adjusting knob for quick, easy pressure-limit adjustment. Moisture-proof cap covers adjusting knob.

When overload condition passes, A-P liquid-charged power element resumes control and maintains normal operation.

May be used as regular thermostatic expansion valve when pressure-limiting operation is not desired.

Easily accessible superheat adjustment covers entire normal operating range. Maintains close superheat control at any operating temperature.



## DEPENDABLE PRESSURE-LIMITING EXPANSION VALVES PROTECT YOUR MOTORS AGAINST OVERLOAD

You'll have no expensive motor breakdowns due to overload when you use these new A-P worry-free expansion valves. By limiting operating suction pressure, they protect the refrigeration system from overloads due to abnormally high pressures during pull-down or peak-load periods. Model 209 is completely adjustable in the field for both pressure limit and superheat. Model 208 is "custom-built" for specific pressure limit and superheat requirements. No other thermostatic expansion valves offer you the features found in these revolutionary valves. Ask for Bulletin R-7 for full details.



DEPENDABLE Controls

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